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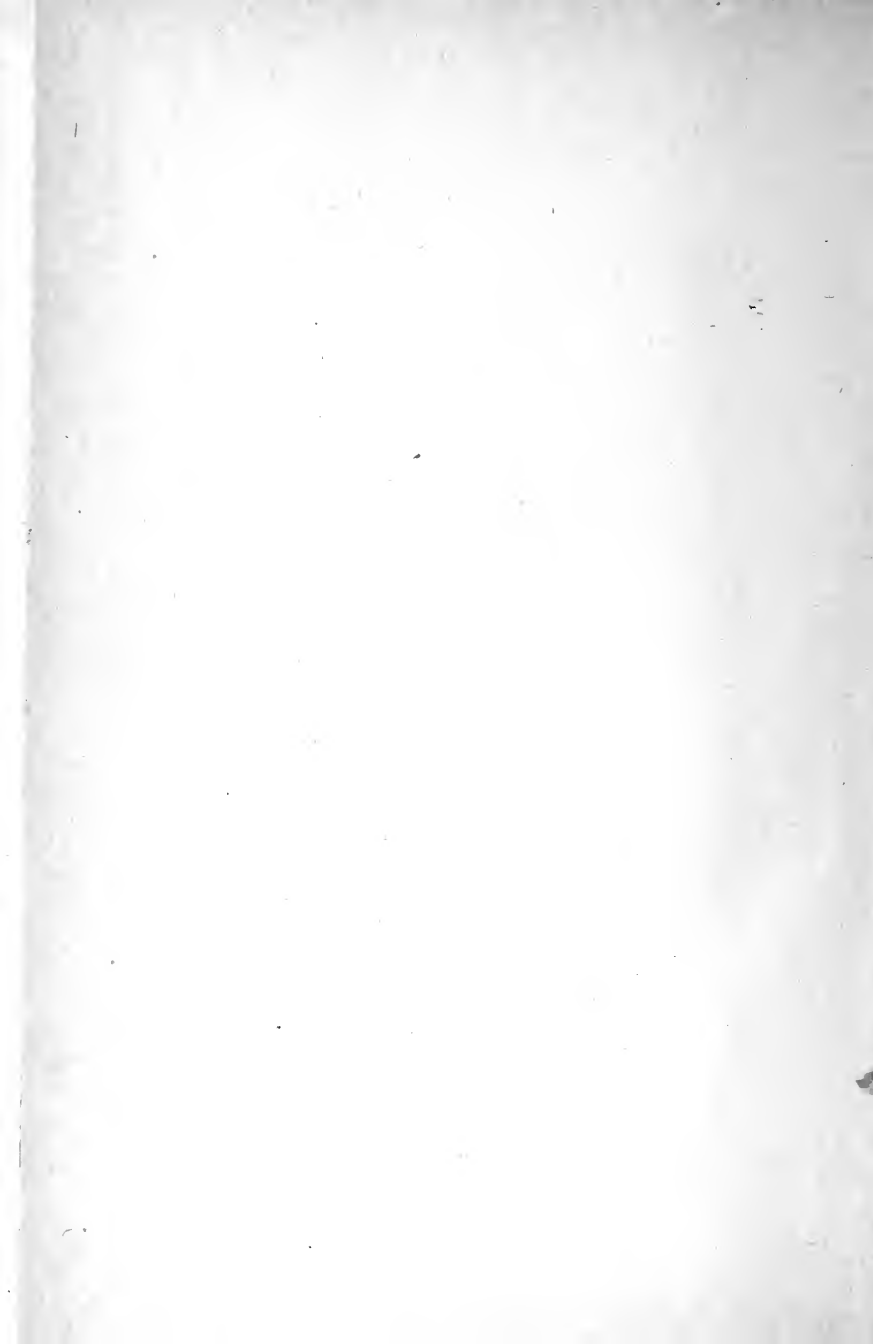
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ANNUAL FOR 1911

OF

THE THAYER SCHOOL  
OF CIVIL ENGINEERING

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AND OF THE  
THAYER SOCIETY OF ENGINEERS  
OF DARTMOUTH COLLEGE

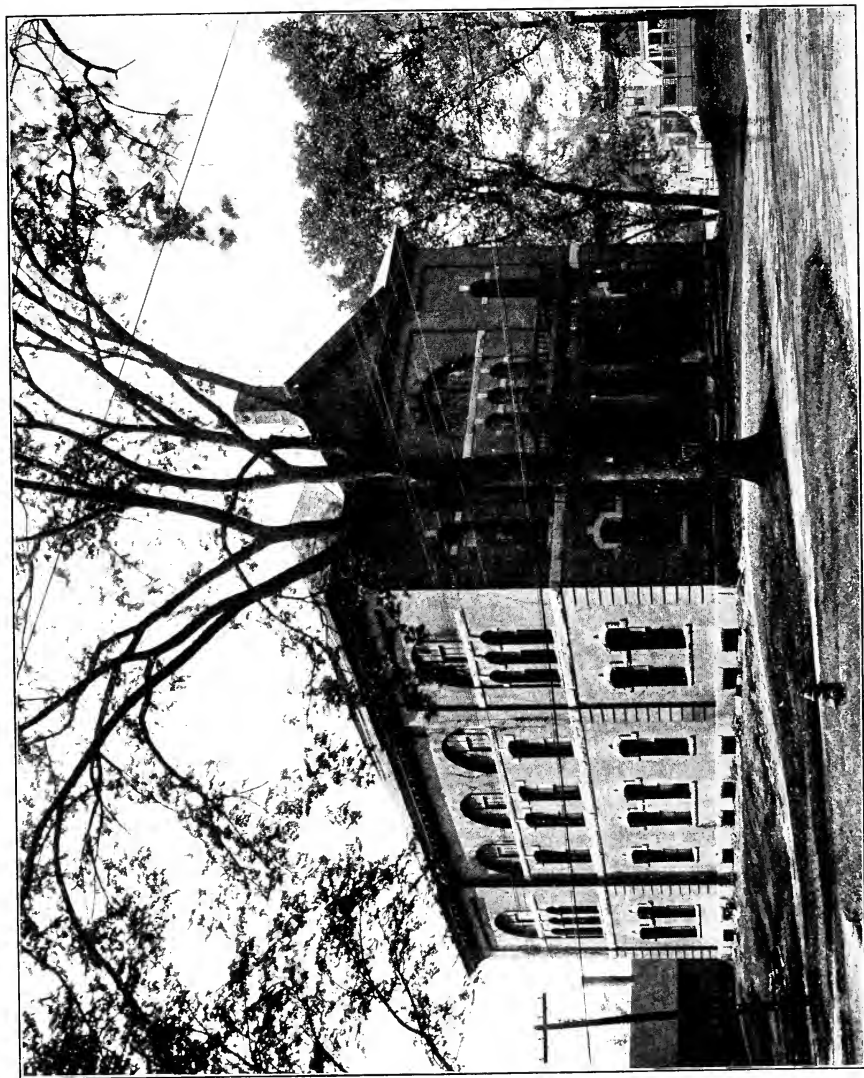
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SEPTEMBER : 1911

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May 1900 The Thayer School of Civil Engineering

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ANNUAL FOR 1911

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OF

# THE THAYER SCHOOL OF CIVIL ENGINEERING

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DARTMOUTH COLLEGE

---

AND OF THE  
THAYER SOCIETY OF ENGINEERS  
OF DARTMOUTH COLLEGE

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PRESENT ADDRESSES OF GRADUATES AND FORMER STUDENTS  
ALUMNI OF THE CHANDLER SCIENTIFIC SCHOOL AND  
OTHER DEPARTMENTS OF THE COLLEGE; AND  
OTHER PERTINENT INFORMATION

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PUBLISHED UNDER THE AUSPICES OF THE THAYER  
SOCIETY OF ENGINEERS OF DARTMOUTH COLLEGE

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SEPTEMBER : 1911

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## CALENDAR

1911

July 18

Year of forty weeks for the first-year class began, Tuesday, 8.15 a. m.

September 20

Year of thirty-one weeks for second-year class begins, Wednesday, 8.15 a. m.

December 21

Recess of twelve days begins, after the morning recitation, Thursday.

1912

January 4

April 23-24

Class-work resumed at 8.30 a. m., Thursday. Meeting of the Board of Overseers, Tuesday. Examination of the classes. Reading of the theses of the class of 1912. Conferring of the Degree of Civil Engineer.

*Summer work-period of about twenty-one weeks begins for the first-year class.*

July 16

Session-year 1912-1913 begins, Tuesday, 8.15 a. m.

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Class-work is omitted on Thanksgiving day. Usually on a holiday the first morning recitation is held.



## THAYER SCHOOL OF CIVIL ENGINEERING

THE THAYER SCHOOL OF CIVIL ENGINEERING was established in 1871 to provide a *distinctly postgraduate* or professional course of study in Civil Engineering. The fundamental idea was to have all of the preparatory training precede the technical. A "program" of 200 pages, prepared under direction of the founder, Gen. Sylvanus Thayer, specified in great detail the requisites for admission, including the necessary mathematics, through the calculus, descriptive geometry, chemistry, physics, astronomy and related studies. This was practically what is now termed "the six-year course," depending upon the College or Scientific School for the specified requirements, and some broader training in languages, history, and "the humanities" generally. Consequently, during the first twenty years, 72 per cent of those admitted had already received the degree of A.B. or B.S.

But only a few were able or willing to take so much time; and, when Dr. Wm. J. Tucker assumed the presidency of Dartmouth College in 1893, a readjustment was made between the college courses and those of the associated institutions to accord with the broad policy which the President stated thus:—"It is always and everywhere the function of the College to give a liberal education, beyond which and out of which the process of specialization may go in any direction and to any extent. The College must continually adjust itself to make proper connection with every kind of specialized work, not to do it."

The BOARD OF OVERSEERS, which is responsible for the general program of courses of study and practice, then sanctioned the arrangement by which the first year's course in the THAYER SCHOOL could be elected by Seniors in College who had attained to the prescribed standard and could pass a special examination conducted by the Director and instructors of the THAYER SCHOOL. This action established the "five-year course" which has been in continuous and successful operation during the past eighteen years, although it has recently been proposed and discussed in some quarters as something of a novelty. The high standard restricted the number of students in the early years, but secured men of

5. m. 16/X/13

broader education, and the change referred to made it possible for men of ability and special aptitude to secure both the college degree and the professional, in five years instead of six.

The administration of the THAYER SCHOOL has offered from the first a general course of study in civil engineering, aiming to include all essential principles and primary operations. There are no laboratories or special machinery for instruction in "mechanical engineering"; but the instruction in applied mathematics, mechanics and physics covers the fundamental theory of mechanical engineering, and there is a sufficient equipment for instruction in practical hydraulics, and a suitable course in electro-technics. Special attention is given to the indispensable *general qualifications* of the *graduate*, to wit: He must be adept in the routine practice of surveying, so as to hold his place under an exacting chief of party; he must be, at the start, an acceptable junior draftsman and an accurate computer; he must have practical knowledge of the ordinary materials of construction, gained by adequate laboratory tests and by trained powers of observation; he must have facility in making accurate and sufficiently complete records in a well-kept notebook; and the habit and method of informing himself as to the progress of engineering science and practice.

In the conduct of the work the conditions of actual practice are realized as much as is possible or expedient, to wit: operations out-of-doors during three months continuously; entire days of unbroken work, and each man made responsible for a prescribed accomplishment and the checking of results; each subject is pursued uninterruptedly to a finish, and usually not more than two subjects are under consideration simultaneously. In the field-work an instructor is assigned to each party of five or six students; in classroom and laboratory instructors give personal supervision from three to eight hours daily; the environment offers wide variations of topography and favors unhampered out-door work for all operations of surveying, stream-gauging, etc. The cost of living is less than that in or near large cities.

*The principle of intensive instruction under close personal supervision* has always characterized the THAYER SCHOOL. While

the several courses hereinafter described as broadly constituting the science and art of civil engineering present a greatly enlarged program, as compared with that of thirty years ago, the purpose is to restrict the work of instruction chiefly to those controlling principles, data, methods, manual operations, verifications and the common business transactions of engineering which are fundamental, and which will equip the trained men to meet the usual emergencies in the principal lines of modern practice; but no subject is pursued to the extent of specializing. Justification of this policy is seen in the records of thirty-eight classes,—the present activities of whose members are partly shown beyond,—where it appears that the graduates have done effective service and filled highly responsible positions in various lines of engineering, in longitude, from Newfoundland and Nova Scotia to the Philippine Islands and Japan, and in latitude from Buenos Aires to British Columbia and Alaska.

Antecedently, graduates of the CHANDLER SCHOOL OF SCIENCE AND ARTS, which graduated its first class in 1854, and known before 1894 as the CHANDLER SCIENTIFIC DEPARTMENT OF DARTMOUTH COLLEGE, had a civil engineering course mostly included in its fourth year. The general alumni list at the end of this ANNUAL shows the professional standing of many of its graduates. Such an one would now find that course very much expanded in the first year of the THAYER SCHOOL curriculum, and taught by a larger force of instructors. Many of the graduates of that period of forty years (receiving the B.S. degree) and afterwards those men of the THAYER SCHOOL who studied only during its first year have achieved noteworthy and, in many cases, distinguished success.

## GENERAL SITUATION AND ADVANTAGES

The THAYER SCHOOL OF CIVIL ENGINEERING is, in the second year of its course, a graduate department of Dartmouth College,—one of the eight oldest colleges of America, established by royal charter in 1769. It has a healthful situation in the Village Precinct of Hanover, N. H., upon a plain 170 feet above the Connecticut river and 550 feet above sea-level. The territory occupied or controlled by the College comprises upwards of ninety acres, including Observatory hill, the athletic field, and the village common. There are forty buildings devoted directly to the uses of the College. Moreover, in case of illness, the Mary Hitchcock Memorial Hospital, constructed upon the most approved plans, and widely known, since its opening in 1893, as one of the best cottage hospitals in the country, furnishes the students such care and comforts as are seldom found outside of the larger cities.

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**CONNECTIONS.** The railroad station, about five-eighths of a mile from the Hanover Inn and postoffice, is known as Norwich and Hanover, on the Passumpsic Division of the Boston and Maine Railroad. White River Junction, four miles south of Hanover, is the center of four lines of railroad:—the Concord Division of the B. and M. system; the Central Vermont Railroad and the Connecticut River Division, B. and M. R. R. (eight hours to New York), and also connecting at Greenfield and Springfield (Boston and Albany R. R.) for the West; the Central Vermont Railroad, making connection with Montpelier, Burlington and the West (thirty hours to Chicago); the Passumpsic Division, B. and M. R. R. (eight hours to Montreal).

## THE ANNUAL AND THE THAYER SOCIETY OF ENGINEERS

Previous to 1899 the announcements of the THAYER SCHOOL OF CIVIL ENGINEERING were made in the annual catalogues of DARTMOUTH COLLEGE and by occasional bulletins. But the advantage of a separate and earlier publication, giving addresses of graduates and other information not admissible in the catalogue, became so evident that the ANNUAL was instituted; and, when the THAYER SOCIETY OF ENGINEERS was organized, it assumed the responsibility of providing for the publication through its Executive Committee. As the Society includes in its membership former members of the CHANDLER SCIENTIFIC DEPARTMENT of the College, as it was distinctively known before 1893, it has also endeavored to get into touch, not only with all former students of the Scientific Courses, but also with all graduates of the College who have become identified with engineering or related pursuits. Hence the supplementary list of addresses at the end of this volume which is prepared by the Secretary of the Thayer Society of Engineers.

All correspondence is, and for many years has been, systematically filed. Hence inquiries concerning THAYER SCHOOL men may be answered so far as they have supplied information, subject to confidential restrictions. A word of appreciation for those who have been good correspondents is here apropos. The Director has received many interesting letters describing works in progress or under observation, and these sometimes contain items or comments which, without violating confidence, may be presented to the students for instruction or stimulation. The young men are quite effectively impressed by this sort of "personal contact" with their predecessors, and value highly such opportunities for outlook into the field which they are preparing to enter.

Copies of the ANNUAL of previous years (excepting that of 1901, which is out of print) will be sent on application to the Director, Prof. Robert Fletcher. These contain biographical

sketches of deceased alumni, notices of the technical work of the School, and of T. S. C. E. men, etc. The ANNUAL of 1906 contains a biographical sketch and a print of the portrait of General Thayer which is in the Library of the U. S. Military Academy.

For further information of the THAYER SOCIETY OF ENGINEERS, apply to the Secretary, Geo. C. Stoddard, Civ. Eng., 215 West 125th St., New York City.

## REQUIREMENTS FOR ADMISSION

Students in DARTMOUTH COLLEGE, in course of preparation for the THAYER SCHOOL, are advised to take the following studies, both to meet the College requirements and to conform to present standards of qualification:

### FRESHMAN YEAR

<i>First Semester</i>		<i>Second Semester</i>
Graphics 1	} Required	Graphics 2
English 1		English 2
Mathematics		Mathematics
Spanish	} Recommended	Spanish
French		French
German		German

### SOPHOMORE YEAR

Graphics 3	} Required	Graphics 4
Mathematics		Mathematics
Physics 1		Physics 2
Physics 3		Physics 4
History 1		History 2 and
		Chemistry 2 for those not presenting Chemistry on entrance.

JUNIOR YEAR

Physics 5	}	Required	Engineering 6
Chemistry 3			Chemistry 4
Astronomy 3			Astronomy 4
[Astronomy 2 not accepted]			English 10
English 9			Mineralogy 4
Mineralogy 3			
Economics 1, or	}	Recommended	Economics 2, or
Political Science 1			Political Science 2

The essential requirements, formerly prescribed with particular details in "Program A," are:—1. Arithmetic; 2. Algebra, *Taylor* or *Bourdon*; 3. Geometry; 4. Trigonometry and Mensuration; 5. Compass Surveying; 6. Descriptive Geometry, including Shades, Shadows, Perspective, and Isometrical Drawing, *Church* or *Wilson*; 7. Analytic Geometry, *Bowser* or *Hardy*; 8. Calculus, *Hardy*; 9. Mechanics, as treated in Physics; 10. Chemistry: as nearly as possible a course equivalent to Chemistry 2, 3, and 4, of DARTMOUTH COLLEGE courses; 11. Physics: as nearly as possible the equivalent of Physics 1, 2, 3, 4, and 5 of the College courses (3 and 4, laboratory practice); 12. Astronomy, *Young's Manual*; 13. Physical Geography and Meteorology.\*

Candidates for admission, whether from Dartmouth College or other institutions, have to pass an examination which is both oral and written. They should give notice of intention to apply by April 15, or earlier. They must present a certified record of standing and proficiency, and a neat set of *mechanical drawings*—constructions of important geometrical problems and leading

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\*The text books indicated above are recommended, but others fully equivalent may be used.

†Students entering the College, with the Engineering course in view, are advised to present for entrance: English, French, two years Latin, History I or II, Mathematics I, Physics and Chemistry (elementary). In College Mathematics the short courses in Differential Equations and Determinants are desirable because of their applications in the theory of electro-technics, if time permits.

problems of Descriptive Geometry. Hence a fair degree of skill in mechanical drawing is one of the essential conditions. The usual examination covers more especially the essential principles of the branches numbered 2, 3, 4, 6, 7, 8, 9, 10, and 11. Prompt and accurate statement of principles and *definitions* is insisted upon, and a limited amount of blackboard work may be required. In all cases the "standing" or rated proficiency required is at least 75 per cent in the aggregate, in the subjects above specified, and not less than 85 per cent in at least three, nor less than 60 per cent in any one (not less than 75 per cent, however, in Algebra, Trigonometry, and Descriptive Geometry).

Students of approved ability and proficiency in the Chandler Scientific Course of the College may elect the first-year courses in the THAYER SCHOOL for their work of Senior year. At the close of the year, they may formally graduate from the College with the degree of B.S. They may become eligible for the degree of Civil Engineer, after pursuing the advanced engineering courses, postgraduate studies of the second-year group.

Hitherto about seventy per cent of those admitted have taken the five-year course. A large proportion have returned to take the postgraduate year after intermissions of one, two, and three years.

Only young men of correct habits and high character will be accepted or retained. Indulgence of an appetite for intoxicating drink will be sufficient reason for rejection of any applicant:—and such indulgence or any other immorality by an accepted member of the institution during his course will be sufficient cause for summary dismissal.



## COURSES OF STUDY AND PRACTICE

### FIRST YEAR

From the middle of July to the last week in April, forty weeks, each week comprising eleven half-days, of four and a half hours, devoted to study, field-work, or office work. In emergencies the half day is extended to five hours or more.

Instruction is given chiefly through daily recitations from textbooks, with comments and explanations by the instructor, and occasional test examinations. In each course one or two principal textbooks are purchased by the students, and others for reference or classroom use are made available by the School. The most recent suitable and standard books are procured. Each student is called upon occasionally to read and report upon an assigned topic, presenting results before the class both from prepared notes and sketches and by oral demonstration.

The amount of field work and practice in laboratory, etc., is made sufficient only for necessary training and to elucidate and emphasize the more important principles.

A.—THEORY AND PRACTICE OF SURVEYING. [This is preceded by a preliminary course of 104 hours during Junior year in College.]

1. INSTRUMENTS:—Engineer's transit, wye-level, dumpy level, prismatic compass and sextant; theory of and perfecting of adjustments; finding magnifying power of telescopes, sensitiveness of spirit levels and compass needles, etc.

2. PRELIMINARY PRACTICE until a required degree of facility is attained, and in which each student shall, by himself or as one of a party, do well a piece of test work of each of the following kinds:—differential levelling; angle measurement in a small scheme of triangulation on a systematic plan of survey for the season; a land survey involving ordinary measurement of lines and angles; measurement of a base-line by steel tape and method adequate to

secure precision shown by a probable error not greater than 1 in 400,000; solar observations with engineer's transit for azimuth.

3. GENERAL PRACTICE:—A topographical survey for a contour map, including part of a village or town; a road or line survey by stadia of several miles, making closed circuits for checks; the routine of an ordinary railroad survey, preliminary curves, frog-angles, and switches; and some practice with the aneroid barometer, prismatic compass and hand-level in reconnaissance. The office work includes the most approved methods of computing, use of planimeter and slide-rule, or more precise calculating machine, mapping and tracing. All the work is planned to yield definite and useful results in shape of maps and profiles of selected districts near by, and to foster an *esprit de corps* and pride in the accomplishment.

4. SPECIAL METHODS AND INSTRUMENTS:—Use of the plane-table, photography in surveying, geodetical surveying, and special practice relating to city and underground surveys, etc., can only be briefly considered in the class-room. Such special practice is beyond the domain of the School, but readily mastered in the future.

July 20 to last week in October. *154 half-days.*

B.—MECHANICS AND APPLICATIONS. Principles of kinematics, statics and kinetics; data and laws of friction, elements of mechanism, important applications in the stability of structures, machine design, operation of hoisting machinery, action of the locomotive engine, etc. *70 half-days.*

C.—MATERIALS OF ENGINEERING. 1. Physical and chemical properties and production of limes, cements, mortars, natural and artificial stone, timber, iron, steel, zinc, copper, aluminum, etc.; durability, preservative materials; a brief course in Mineralogy. 2. Mechanical properties, analytically and experimentally treated. 3. Laboratory test of cements, iron, steel, wood, and other materials. *70 half-days.*

A testing machine of sufficient capacity, for tension, compression and bending stress, affords enough practical illustration of the *mechanics of materials*, in a prescribed series of tests made

by each student. Several series of cement tests are conducted each year by groups of two or three, and written reports of these are made to the instructor in proper form.

D.—ORDINARY AND SPECIAL STRUCTURAL WORK AND OPERATIVE DETAILS. *Course begun*:—Elementary courses on stone-cutting (practical problems on the drafting board), masonry and foundations, piers, arches, culverts, and other masonry structures. 36 half-days.

E.—FRAMED STRUCTURES—TRUSSES FOR ROOFS AND BRIDGES, BUILDING SKELETONS, ETC. *Course begun*:—Graphical statics and other analysis applied to girders and simple trusses. Ordinary and essential details. One or two simple designs. 40 half-days.

G.—ROADS, RAILROADS, AND TRANSPORTATION IN GENERAL. *Course begun*:—Roads, streets and pavements,—construction and maintenance. 20 half-days.

L.—ELECTRO-TECHNICS. This year confined to direct current chiefly. 39 half-days; *see beyond*.

## SECOND YEAR

Thirty-one weeks, of eleven half-days each, from the middle of September to the last Tuesday in April. During the second year the character and range of subjects call for wider reading of treatises and current technical literature, which is promoted by full programmes of the courses, and use of indexes.

D.—(*concluded*). Framing in wood and metal; advanced reading on masonry and foundations. Theory and practice in relation to retaining walls, dams, chimneys, fireproof and slow-burning construction of buildings; renewals and enlargements; including a *text-book course on the theory and applications of reinforced concrete in these and other cases*. Estimates and costs. Engineering contracts and specifications, and inspection. Auxiliary work and machinery. Tours for inspection of accessible works.

E.—(*concluded*). Analysis of stresses in trusses, framed arches, stone arches, and suspension bridges; details and maintenance. Frames of tall buildings. Tours of inspection. Two or more designs worked out.

F.—ROCKWORK, TUNNELING, AND MINING. Outlines of Geology,—vacation reading. Explosives and blasting; special appliances and methods in subterraneous works. Reading and lectures. *12 half-days.*

G.—RAILROADS AND TRANSPORTATION. Economics of location, construction and maintenance of railways. Transportation problems in the United States:—railways and water transportation; railways and recent legislation. A brief study of street railways (electrical and cable traction, etc.), mountain railways, telerage, and marine transportation. *36 half-days.*

Tuck School lectures on history and theory of transportation and on railroad operation and administration may be attended.

H.—HYDRAULIC ENGINEERING. Statics and dynamics of fluids; principles and data of hydraulics; collection, storage, purification, and distribution of water for town supply, power, and irrigation. Hydraulic motors: waterwheels, turbines, rams, etc., theory,—construction, and operation; development of waterpower. Gauging of Connecticut River or other streams when practicable. Measurements of flow by weirs and nozzles, of efficiency of motors and pumps, friction in pipes, fire-hose, etc. *50 half-days.*

The Hanover Waterworks, gravity system, constructed at a cost of \$70,000, affords all needed conditions for hydraulic experiments under a head of 160 to 190 feet, in a laboratory equipped for all such operations of recognized importance. Including a reservoir of 137,000,000 gallons capacity, a dam 720 feet long, gate-house, and main and distribution system of about eight miles of pipe, the works are available for inspection, for study of rainfall and its collection, water-ram in the pipes, efficiency of fire-streams, etc.

I.—HEAT, HEAT ENGINES AND POWER. Principles of Thermodynamics; fuels and their combustion; steam. Heat engines; construction and operations of typical forms; application of laws. Development and transmission of power. *30 half-days.*

The central heating system of the College, serving thirty-eight buildings, affords opportunity for studying efficiency of boilers and furnaces, at times when regular tests are made. The pulp and paper mills at Wilder, nearby on the Connecticut River, give abundant facilities for studying the operation of a large waterpower

plant. Arrangements have been made heretofore for conducting tests of waterwheels, gauging flow in flumes, testing fire-pumps, etc., at these works. In the study of development of power, courses H, I, and L are necessarily partly concurrent. (The time available permits only a brief theoretical study of heat-engines).

J.—SANITARY ENGINEERING. Drainage and sewerage; systems and appliances; governing principles. Heating and ventilation. Special study of "separate systems" and methods of sewage disposal. Sand filtration of water and sewage. *30 half-days.*

The village has three separate systems of sewerage, two built and owned by the College and adapted to a suitable disposal plant hereafter. Successful examples of heating and ventilation may be studied in the new buildings of the College. A model (domestic) sand filter has been in operation for some years at the THAYER SCHOOL building, and those who take special interest in the problem of the purification of water supply as affected by micro-organisms may arrange for such studies so far as time will permit.

K.—CANALS, IMPROVEMENT OF RIVERS AND HARBORS. Principles; surveys and observations, construction, in different cases—means and methods of procedure. (Briefly by reading; lectures on the Mississippi river levees, harbor jetties, breakwaters, the Panama Canal, etc.).

L.—PRINCIPLES OF APPLIED ELECTRICITY. In this course, the method of instruction aims to impart a concise, practical knowledge of fundamental laws and phenomena, and of the best modern types of electrical apparatus, so as to give an understanding of their design, construction and operation.

The recitations deal with the analysis of the magnetic field and lines of force; the magnetic circuit; properties of the electric current; electro-magnets; electro-magnetic induction; electrical units; energy of the electric circuit and the application of the foregoing to primary and storage cells, motors and dynamos, telephone and telegraph, electric lighting and transformers.

The laboratory exercises are arranged to show the construction and use of the more important measuring instruments, and to give practice in testing for resistance and insulation.

Supplementary lectures will deal more specifically with the

construction, operation and characteristics of motors, dynamos, and transformers; storage batteries; alternating currents, electrical transformation; transmission and distribution of energy. *80 half-days, including 36 half-days in the first year.*

THESIS WORK in connection with one or more of the courses, and a week or two of exclusive time. Some of the courses of this year are so interdependent that the time allotments stated are only approximate.

BUSINESS RELATIONS OF THE ENGINEER. Students of the THAYER SCHOOL may attend lectures given in the Tuck School of Administration and Finance, on appropriate subjects, so far as the schedules will permit.

THE PRINCIPAL TEXTBOOKS used are:—Johnson's "Treatise on Surveying," Webb's "Railroad Construction," Berger's "Manual of Engineer's Instruments," Merriman's "Least Squares." Maurer's "Technical Mechanics," Hancock's "Applied Mechanics," and problems from Sanborn's "Mechanics Problems," and other works. Baker's "Masonry Construction," Johnson's "Materials of Construction," Merriman's "Mechanics of Materials," Carnegie's "Pocket Companion (Steel) and 'Cambria Steel.'" French and Ives' "Stone-Cutting," Burr and Faulk's "Influence Lines" for Bridges and Roofs. Baker's "Roads and Pavements." Yorke's "Applied Electricity," and Rhode's "Alternating Currents" (heretofore) and Bell's "Electric Power Transmission." Taylor and Thompson's "Concrete and Reinforced Concrete," Turneure and Maurer's "Principles of Reinforced Concrete Construction." Tucker's "Contracts in Engineering." Johnson's and Turneure's "Framed Structures." (New edition by Turneure, Bryan, etc.). Johnson's "Railway Transportation," and reading of Wellington's "Railway Location." Merriman's "Hydraulics," Turneure and Russell's "Public Water Supplies," and reading of Schuyler's "Dams," Church's "Hydraulic Motors," etc. Folwell's "Sewerage," Hazen's "Pure Water," and reading of recent works on sanitation and sewage disposal. Classroom use of Rontgen's "Thermodynamics" (Dubois), with references to Wood's "Thermodynamics," Classroom use of Stevenson's "Canal and River Engineering" and Stevenson's "Harbors."

## IN GENERAL

TOURS, for the study and inspection of works in progress or completed are made when expedient. Visits have been made to Boston, Lawrence, Lowell, Worcester, Holyoke, New York, etc.; and have included the construction of the first Brooklyn suspension bridge; steel works; sewage disposal works at Worcester and Clinton; the principal works for water supply and waterpower development in New England; mines, bridge-works, large pumping plants, Massachusetts Experiment Station, etc. There is now so much to be seen of bridges, developments of water supplies, power and electric transmission, mines, etc., at points so near as to be reached by single-day trips, that longer tours have not been made recently.

SUMMER WORK PERIOD AND INTERMEDIATE YEAR. Opportunities for summer employment have usually been found for the first-year men before or soon after May 1st. In most cases the students are qualified only for subordinate positions as draftsmen, assistants in city engineers' offices; on railway surveys or maintenance, U. S. Government Surveys, etc. The advantages from such practice are often very considerable, but vary with the opportunity offered, and with the character, aptitude, and previous experience of the man. Some find it necessary or desirable to continue in such employment during the entire following year, and some make their way to positions of responsibility; all of these appear in the ANNUAL, and College Catalogue, as the non-resident group for an intermediate year.

TERMS, EXAMINATIONS, ETC. The session-year is divided into two terms by the holiday recess of twelve days. The summer *work-period* extends from the last week in April to mid-September. The *graduating* THESES are submitted to the BOARD OF OVERSEERS, before whom the candidates for the *Degree of Civil Engineer* present themselves for examination in April; after which the degrees are formally conferred.

Tuition is one hundred and twenty-five dollars per annum, one-half to be paid each term in advance. The graduation fee is ten dollars. There is no provision for pecuniary aid. The annual expenses for an economical student will vary not far from four hundred dollars, including tuition, books, and stationery, board, fuel, light, and drawing instruments.

Any student who fails to maintain an average of at least 75 per cent during the first year of the THAYER SCHOOL work will not be allowed to enter upon the courses of the second year, nor be entered upon the College Catalogue as a student of an intermediate year.

U. S. CIVIL SERVICE EXAMINATIONS. The U. S. Civil Service Commission has arranged to hold examinations in Hanover, for the convenience of applicants from the student body. The positions for which students of the THAYER SCHOOL OF CIVIL ENGINEERING are eligible are:—Aid, Coast and Geodetic Survey, assistant topographer, draftsman, civil engineer and draftsman, engineering and hydrographic aid, U. S. Geological Survey, and U. S. Reclamation Service. The last three are usually possible only for second-year students, candidates for the degree of C.E.

For further information, address President ERNEST F. NICHOLS, or Professor ROBERT FLETCHER, Director.

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#### THE NEW DOMICILE

By vote of the TRUSTEES OF DARTMOUTH COLLEGE the old gymnasium, known as Bissell Hall, has been entirely reconstructed inside with steel frame and reinforced concrete,—making a fireproof interior,—under direction of the BOARD OF OVERSEERS and Faculty of the THAYER SCHOOL. This affords about two and a half times the floor-space formerly occupied, and provides more commodious classrooms, ample laboratories for hydraulics, electrotechnics, cement testing and mechanical tests of steel, wood, concrete beams, etc., two large drawing rooms with overhead light, a large room for the library, an alumni “memorial” room, and larger offices for the DIRECTOR and other instructors. The floor plans of the three full stories and a high basement are shown beyond.



## BOARD OF OVERSEERS

ERNEST FOX NICHOLS, D.Sc., President of Dartmouth College, PRESIDENT.

HENRY LARCOM ABBOT, LL.D., lately Col. U. S. Corps of Engineers; Brig. Gen. U. S. Army, retired. Permanent address, 23 Berkeley St., Cambridge, Mass. Consulting Engineer. Lately member of International Comité Technique de la Compagnie Nouvelle du Canal de Panama and subsequently its Consulting Engineer. Member of the International Board of Consulting Engineers for the Panama Canal. Professor of Hydraulic Eng., George Washington Univ., Washington, D. C.

JONATHAN PARKER SNOW, C.E., Recently Chief Engineer of the Boston and Maine Railroad System. Consulting Civil Engineer, Office 18 Tremont St., Boston, Mass. Residence, 58 Chandler St., W. Somerville.

GUSTAV JOSEPH FIEBEGGER, Col. U. S. Army; Professor of Civil and Military Engineering, U. S. Mil. Academy, West Point, New York.

OTIS ELLIS HOVEY, C.E., Asst. Chief Engineer of the American Bridge Company of New York; Hudson Terminal Bldg., 30 Church St., New York City.

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### TREASURER

CHARLES PARKER CHASE, A.M., Hanover, N. H.

## BOARD OF INSTRUCTION

ERNEST FOX NICHOLS, D.Sc., President of the College,  
PRESIDENT.

ROBERT FLETCHER, PH.D., Civ. Eng.

DIRECTOR and Professor of Civil Engineering:  
Mechanics, Hydraulic and Sanitary Engineering, Bridge Design and  
other advanced courses.

JOHN VOSE HAZEN, C.E.

Professor of Civil Engineering on the Chandler Foundation:  
Railroad Surveying, Road Construction, and Masonry Structures.

CHARLES ARTHUR HOLDEN, C.E.

Professor of Civil Engineering: In charge of Surveying Courses;  
Materials of Construction and Mechanics of Materials; instruction  
in second year courses.

FRANK EUGENE AUSTIN, B.S.

Professor of Electrical Engineering:  
Experimental Hydraulics and Power Transmission.

SIDNEY LEE RUGGLES, C.E.

Instructor in Surveying,  
Graphics and Laboratory.

HAROLD LEWIS ENGLISH, B.S.

Field Assistant in Surveying, July, August and September.

## NON-RESIDENT INSTRUCTORS AND LECTURERS

### Session-year 1910-11

COL. F. V. ABBOT, U. S. Corps of Eng'rs, in charge of the Boston District, gave a lecture to the students, December 12, 1910, on "Foundation for a Mortar Battery in Mud and Quicksand," and on some points in construing contracts in harbor work.

HIRAM N. SAVAGE (T. S. C. E., 1890), Cons. and Supervising Eng. U. S. Reclamation Service, gave a lecture to the faculty and students of the Thayer School, February 9, on the accomplished constructions of the U. S. R. S. and prospects of the work ahead. Illustrated by numerous and excellent lantern views.

MR. E. H. HUNTER (T. S. C. E., 1902), Engineer and Supt. of of Buildings, Dartmouth College, gave a talk to the SCHOOL on his recent visit to the Panama Canal and his observations on parts of Central America on his trip via San Francisco.

HUGH B. TABOR (T. S. C. E., 1897), representative of the U. S. Steel Products Export Co., in Buenos Aires, Argentina, gave a talk to the students of the SCHOOL, on conditions of engineering and business in Argentina and other states of South America.

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Non-Resident Lecturers, etc., for 1911-12, cannot yet be announced in detail.

SIDNEY G. WALKER (T. S. C. E., 1893), Insurance Engr. for a number of associated mutual fire insur. co's, is expected to talk to the THAYER SCHOOL faculty and students on some aspects of fire prevention interesting to civil engineers.

## ADDRESSES AND OCCUPATIONS OF ALL MEMBERS OF CLASSES TO DATE

The DEGREE OF CIVIL ENGINEER was conferred in due course upon those whose names appear in black letter, and must be so understood, in addition to the college degrees (conferred by Dartmouth College unless otherwise stated), indicated by the usual title letters.

Names in italics are of those who left at the end of the first year, to engage in engineering or other business; also of a few who failed otherwise to qualify for the degree.

\*\*Denotes deceased. Biographical notices of the deceased of previous years may be found in the Annual for 1899 and those following. Literary activities of THAYER SCHOOL men are noted in the Annual for 1904 and some of those preceding.

Membership in the THAYER SOCIETY OF ENGINEERS is indicated by a †.

That portion of this publication relating to the Thayer Society of Engineers, separated by its appropriate title page, was prepared by GEO. C. STODDARD, the Secretary of that Society; the first part by the DIRECTOR of the THAYER SCHOOL.

*All Thayer School men are particularly requested to inform the Director promptly as to any change in professional or other occupation, and residence.*

ARRANGEMENT AND ABBREVIATIONS:—The business address is given first. Perm. = Permanent Address. Res. = Resides. Eng. = Engineer. Civ. = Civil. Jun. = Junior. Memb. = Member. Assoc. = Associate. Div. = Division. Res. Eng. = Resident Engineer. Pres. = President.

## NAMES AND ADDRESSES BY CLASSES

*The affixed date in parenthesis indicates when the last information was given. If any reader has later information please send it promptly to the Director, and to the Secretary of the Thayer Society of Engineers. Class secretaries are requested to coöperate.*

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## 1873

**\*\*Thomas Stevens Greenlay.** Died at San Antonio, Texas, Sept. 24, 1898. (See Annual for 1899.) Two sons succeeded to his business as manager of railway supply house.

**\*\*Albert Hezekiah Porter, A.M.** Died at Thetford Center, Vt., Dec. 10, 1909; age 65 years. (See Annual for 1910.)

**\*\*Henry Allen Hazen, A.M.** Died at Washington, D. C., Jan. 24, 1900. (See Annual for 1900.) Was Professor of Meteorology, U. S. Weather Bureau; author of various papers on meteorology.

## 1874

**James Trask Woodbury, A.B.** Farmer, Frankestown, N. H. Attended the two years' course, but did not formally graduate.

## 1875

**Charles Everett Andrews, A.M.** Congregational minister and farmer, Walpole, Mass. (1906)

**Henry Martyn Paul, A.M.** Astronomer, U. S. Navy until 1899. Engineer in Bureau of Yards and Docks, until Sept., 1905; since then Professor of Mathematics, U. S. Naval Acad., Annapolis, Md.†

**Jonathan Parker Snow.** Chief Engineer, Boston and Maine Railroad System from July 1, 1909, to July 1, 1911; having been bridge engineer since June, 1888. Consulting Civil Engineer, Office 18 Tremont St., Boston, Mass. Res. at 58 Chandler St., W. Somerville, Mass. Overseer THAYER SCHOOL C. E., Director Am. Soc. C. E., Director Boston Soc. C. E., member Am. Soc. for Testing Materials, and Am. Ry. Eng. Assoc.† Author of valuable committee reports and contributed discussions on iron and steel structures.

**\*\*Edward Lewis Gage, B.S.** Died at Chicago, Ill., April 21, 1892. Was railroad engineer and ranchman in Texas.

## 1876

**\*\*Walter Henry Foster, B.S.** Died at Rutland, Vt., April 2, 1878. (See Annual for 1899.) Teacher.

**John Vose Hazen, B.S.** Professor of Civil Engineering and Graphics, Chandler Scientific Course, and in the THAYER SCHOOL OF CIV. ENG., Dartmouth College. Memb. Am. Soc. C. E. Memb. of Soc. for Prom. of Eng. Educ.† In practice as a Surveyor and Civil Engineer. Commissioner, Hanover Village Precinct,—in charge of street paving and improvements, nine years; School Commissioner, etc.

**Charles Holmes Pettee, A. M.** Professor of Mathematics, Dean of New Hampshire College, Durham, N. H. Memb. of Soc. for Prom. Eng. Educ., and of the A. A. A. S.

## 1877

**Edward Kellogg Blanchard** Chief Eng. Wyoming Const. and Development Co., Buffalo, Wyo. Res. Seymour, Mo.

**George Arthur Butler, A.B.** Assistant Engineer, Bridges and Building Dept., Ill. Cent. R. R. 6730 Normal Ave., Chicago, Ill. Last report from Bloomington, Ill. (1902)

**John Whitcher Record.** Engineer for Buffalo Dredging Company; dredging, construction of canals, breakwaters, docks, and foundations: 1105 D. S. Morgan Bldg., Buffalo, N. Y. Res. 2206 Main Street.

**John Alberto Worthen, B.S.** General practice, and farming. Address: Norwalk, Los Angeles Co., Cal. (1909)

## 1878

**John Dye Lonsdale.** Manufacturer, Dale City, Guthrie Co., Ia. Lately County Surveyor. (1909).

**\*\*Mace Moulton.** Lately Consulting Engineer for iron and steel structures, New York City. Died suddenly, April 27, 1909. (See Annual for 1909.)

## 1879

**Ray Timothy Gile, B.S.** Civil Engineer and Surveyor, 61

Pleasant St., Littleton, N. H. Surveys for and construction of railroads, highways, sewerage, and waterworks; exploring, estimating and surveying of timber lands.†

## 1880

**\*\*Chalmers Williams Stevens, M.S.** Killed by lightning, at National Observatory, Cordoba, Argentine Republic, Feb. 16, 1884. (See Annual for 1899.) The fine chime of bells for Rollins Chapel, Dartmouth College, was given as a memorial of Mr. Stevens by the late Hon. William E. Barrett of Boston, Mass. (Dart. Coll., 1889.)

## 1881

**\*\*Hiram Augustus Hitchcock, B.S.** Assoc. Prof. Civil Engineering, THAYER SCHOOL OF CIVIL ENGINEERING, 1883 to 1995. Died at Hanover, N. H., January 17, 1895. (See Annual for 1899.)

**\*\*Elmer Kilburn.** Died at Omaha, Neb., April 16, 1881.

*Charles Damon Lamb, B.S.* Asst. Engr. U. S. A., U. S. Eng. Depot, foot of Arsenal St., St. Louis, Mo. Res. 6333 Vermont Ave. (1909)

*David Ramsay Reed, B.S.* Mining Engineer. Consulting Engr. for the Camp Bird Mining Co., Ouray, Col. (1903)

## 1882

**Sidney Bates Cady, A.B.** (Middlebury College.) Asst. Engr. Board of Public Improvements, Topographical Bureau, Borough of Brooklyn, New York City. Memb. of Soc. of the Municipal Engrs. of the city of New York. Res. Walnut Terrace, Bloomfield, N. J.

**\*\*Edmund Dorman Libby, A.B.** Died in Concord, N. H., April 24, 1903. (See Annual for 1903.) Was U. S. Engr. on Mississippi river improvement, St. Louis to Cairo.

**John Alexander Macnicol.** Consulting Eng. for the Snare & Triest Co., 143 Liberty St., New York City, and Havana. Box 733, Havana, Cuba. (Reported 1910.) Memb. Am. Soc. C. E.† Concrete and steel pier construction in Havana and Cienfuegos; railroad construction; roadways, and steel lighthouses for government of Cuba; steel and concrete wharf U. S. Navy Station, Guantanamo; terminal and ferry terminals and shops for United Railways of Havana; water works for Santiago; general engineering work in execution of contracts throughout the island of Cuba.

**\*\*Dana Chase Barber.** Died at his home, near Philadelphia, 1889. (See Annual for 1899.) Was a sanitary engineer in Philadelphia.

## 1883

**Sinclair Joseph Johnson, A.M.** (University of Wooster, O.) Railway and Automobile Specialties: 50 Church St., New York City. Res. 43 Harrison Ave., Montclair, N. J.

**Solomon Barnes Merrill, A.B.** In practice as Civil Engineer and Assayer. Since April, 1905, Secretary-Treasurer of Boulder Iron Works, Boulder, Col. Address 821 Mapleton Ave. (1910)

## 1884

**George Hunt Hutchinson, B.S.** Chief Eng. Northwestern Fuel Co., Pioneer Press Bldg., St. Paul, Minn. Res. White Bear Lake, Minn., Lincoln and Clarence Sts. Memb. Am. Soc. C. E.†

**\*\*George Riedemann, B.S.** (College of the City of New York.) Died in New York, May 11, 1885.

## 1885

**Daniel Edward Bradley, B.S.** Berlin, Conn. Retired in May, 1910. Out of business at present. Memb. Am. Soc. C. E., and of Conn. Soc. C. E.†

**Ralph Henry Brown.** Chief Engineer, Eastern Bridge and Structural Co., Worcester, Mass. Office and Works: Crescent St. Memb. Am. Soc. C. E.† (1910)

**John Jacob Hopper, B.S.** Contractor and Civil Eng. 215 West 125th St., New York City. Jun. Am. Soc. C. E. Memb. Engineers Club.† Mr. Hopper built the section of the N. Y. Rapid Transit Subway, 104th St., to Harlem River, including the tunnel through Central Park, executing this large contract without any serious accident.

**\*\*Arthur Walker, A.B.** (Univ. of Wooster, O.) Died Sept. 27, 1891. Was a bridge draftsman and designer, Pittsburg, Pa.

*John James Marshall.* Student through the two years' course.



Did not formally graduate. Last report: Marshall & Atherly, Engrs. and Contractors, Basin, Wyo.† (1910)

**\*\*Irving Benjamin Hayes, A.B.** Physician, Florence, Mass. Died Jan. 3, 1909. (See Annual for 1910.)

**Benjamin Phillips, A.B.** Patent Lawyer, 53 State St., Boston, Mass. Phillips, Van Everen & Fish. Res. Lakeville, Mass. (1910)

## 1886

**Walter Whaley Curtis.** Consulting Civ. Eng., 537 So. Dearborn St., Chicago, Ill. Has made investigations on preservative processes for railway ties; (Trans. Am. Soc. Civ. Eng. Vol. XLII, etc.); Western representative of the Toledo Bridge and Crane Co. Expert in patent cases. Memb. Am. Soc. C. E., St. Paul Soc. C. E., Western Soc. of Eng., and Am. Ry. & Maint. of Way Assoc.

**Malverd Abijah Howe, M.S.** (Norwich University, Vt.) Prof. of Civil Eng. and Director of Course in Architecture, Rose Polytech. Inst., Terre Haute, Ind. Memb. Am. Soc. C. E., Soc. for Prom. Eng. Educ., Am. Assoc. Adv. Sci., Am. Soc. for Testing Materials. Author of works and articles on theory of arches and bridge trusses.

**John Duncan Hutchinson, A.B.** (Middlebury College, Vt.) Civil Engineer, Antrim, N. H.

**John Frank Springfield, A.B.** Public Utilities, Hutchinson, Kan. Perm. 64 Summer St., Rochester, N. H.†

**Frank Lyon Wheaton.** Eng. Dept., D. L. & W. Ry., Hoboken, N. J. Res. 85 South Arlington Ave., East Orange, N. J. With this company since 1900 as Eng. of construction, reporting directly to the Chief Eng.; lately in charge of the new double track tunnel through the Palisades, Jersey City. Recently located the Hopatcong cut-off in northern New Jersey through the mountains, and has charge of this very heavy construction, including two long arch bridges and ninety road culverts under high fills. (See his descriptive paper in *Eng. News*, Aug. 13, 1908; also in *Eng. Record* and *Railroad Gazette*.) Memb. Am. Ry. & Maint. of Way Assoc.† Assigned to locate and construct 41 miles of new line west of Scranton, Pa.

*Rush Chellis, A.B.* Claremont, N. H. General practice as Engineer and Surveyor in Sullivan County and adjoining district. Also farmer and breeder of Jersey cattle. Representative, N. H. legislature, 1907 and 1909.

*Edwin Preston Dewey, B.S.* (New Hampshire College.) City Engineer, City Hall, Long Beach, Cal. Res. 829 Chester Place.

*Robert Hunter.* Present address unknown.

#### 1887

**Walter Eugene Angier, B.S.** Since May 1, 1910, memb. of firm: Modjeski and Angier, Monadnock Bldg., Chicago; inspection of all material and work of construction; laboratory 6402 Yale Ave. Pittsburg office, 607 Arrot Bldg., Pittsburg, Pa. Lately Res. Eng. Thebes Bridge, Thebes, Ill. Res. 4538 Oakenwald Ave., Chicago, Ill. Memb. Am. Soc. C. E. Memb. Western Soc. Engrs. Memb. of Chicago Engrs. Club.

**Samuel Morey Wilcox, B.S.** U. S. Asst. Eng. in charge of field office and work for improvement of Galveston Harbor; Office U. S. Engr., Galveston, Tex.

#### 1888

**Charles Herman Cheney.** Memb. and auditor, Cheney Brothers, Silk Manufacturers, South Manchester, Conn. (estab. 1838, incorp. 1854). In charge of the supply, purchasing, and traffic depts.; advisory memb. of Board of Directors. Memb. N. E. Assoc. Gas Engrs., and Treas. S. Manch. R. R. Co.†

**Charles Henry Nichols, B.S.** (M. C. E. Norwich Univ., Vt.) Engineer for Trowbridge and Livingston, Architects, 527 Fifth Ave., New York City. Res. River Road, Bogota, N. J. Consulting Engineer: structural steel, foundations, reinforced concrete, timber-construction, etc. Memb. Eng. Soc. Western Pa.†

#### 1889

**Charles Lincoln Carpenter, B.S.** Chief Eng. and Gen. Mgr. Guantanamo and Western R. R. (lately Cuba Eastern), Guantanamo, Cuba. Res. Andover, Mass. After four years' service, two as Resident Engineer, for the Isthmian Canal Comm., resigned on the re-organization in 1908, when five divisions were concentrated

into three. Since Sept., 1908, reconstructed Cuba Eastern Ry., for J. G. White & Co. Memb. Am. Soc. C. E., Am. Ry. & Maint. of Way Assoc., and of Am. Soc. of Contracting Engrs.†

**Charles Francis Chase, A.B.** Chief Eng., Berlin Construction Co., Berlin, Conn. Res. New Britain, Conn. Memb. Am. Soc. C. E., and of Conn. Soc. C. E.† Chairman of the Board of Public Charities, New Britain.

**Herbert Stacy Eaton, B.S.** Asst. Eng. Visalia Elect. Ry. Co., Lemon Cove, Tulare Co., Cal. Res. Caruthers, Fresno Co., Cal. (1909) Letter returned unclaimed, 1911.

**Arthur Woodbury Hardy, B.S.** (New Hampshire College.) Manager Western Sprinkled Risk Assoc., 234 La Salle St., Chicago, Ill. Pres. Garden City Spring Works, Inc. Res. 4020 Ellis Ave.†

**Otis Ellis Hovey, B.S.** Asst. Chief Engr. American Bridge Co. of New York, Hudson Terminal Bldg., 30 Church St., New York City. Res. 304 W. 7th St., Plainfield, N. J. Memb. Am. Soc. C. E., Memb. Am. Soc. for Testing Materials. Overseer of the THAYER SCHOOL OF CIV. ENGR.†

**\*\*William Robert Michie.** Died Feb. 2, 1899, at Johnstown, Pa. (See Annual for 1899.)

**Frank Berry Sanborn, B.S.** Prof. of Civil Eng., Tufts College, Mass. Consulting practice in engineering. Memb. Am. Soc. C. E., and of Boston Soc. of C. E.† Res. Cambridge B, Mass. Inventor of hydraulic devices. Director Boston Insulated Wire and Cable Co. Author of "Mechanics' Problems." Making investigation of the conditions affecting the public health of the city of Lawrence, Mass., during part of 1911, including the summer.

*Thomas Flynn.* Res. 511 East 134th St., New York City.† (1910)

#### 1890

**Amasa Burton Clark, B.S.** President of Clark & Company, Engineers and contractors, 225 Fifth Ave., New York City. Specialty: foundations, having designed, constructed or repaired foundations for a variety of structures in New York and elsewhere.

Consultation in matters relating to foundations situated at widely separated points. President of Thayer Society of Engineers of Dartmouth College, 1909.†

**William Nelson Hazen, B.S.** (New Hampshire College.) Eng. for Am. Concrete-Steel Co., Essex Bldg., Newark, N. J. Res. 361 Park Ave., E. Orange, N. J. Memb. Am. Soc. C. E., and Soc. for Testing Materials.†

**Hiram Newton Savage, B.S.** (New Hampshire College.) Supervising Engineer in the U. S. Reclamation Service. Office at Helena, Montana. Address also in care of U. S. Reclamation Service, Washington, D. C. Supervising the numerous projects in the Northwest, nine under construction; five in operation. Memb. Am. Soc. C. E.†

**George Pillsbury Wood, B.S.** (New Hampshire College.) Asst. Eng., Board of Water Supply, City of New York, from Nov. 14, 1906, to Feb. 28, 1911. Since latter date Div. Eng. in charge of Peekskill Div. Res. 217 Walnut St., Peekskill, N. Y.† Memb. of Am. Soc. of C. E.

#### 1891

**Hardy Smith Ferguson, B.S.** Chief Eng. Great Northern Paper Co. and West Branch Driving and Reservoir Dam Co., Milinocket, Me. Memb. Am. Soc. C. E. Memb. Am. Soc. Mech. Eng., and Can. Soc. C. E.† Consulting Engr. for water power development, and construction and equipment of manuf'g plants. Since Feb., 1911, Consulting Eng., 200 Fifth Ave., New York City; Home address: 082 Pine St., Portland, Me.

**Edward Dana Hardy.** U. S. Asst. Eng., Supt of the Washington Aqueduct, and Washington Aqued. filtration plant. 1st and Douglas Sts., N. W., Washington, D. C.; res. 48 Rhode Island Ave., N. W. Memb. Am. Soc. C. E., New Eng. Water Works Assoc., Am. Water Works Assoc., Washington Soc. of Engrs., and Wash. Acad. of Sciences. (1910)

**\*\*Fred Ellsworth Lamb, B.S.** Died at Northfield, Vt., July 28, 1893. Was U. S. Junior Engr. and bridge draftsman.

**George Francis Sparhawk, B.L.** Engineer in charge of drafting room, American Bridge Co. Address: Care of Am. Bridge Co., Ambridge, Pa. Res. 490 East End Ave., Beaver, Pa. Memb. Am. Soc. for Testing Materials.†

## 1892

**Arthur Willard French.** Prof. of Civ. Eng. and head of the Dept., Worcester Polytech. Inst., Worcester, Mass. Res. 202 Russell St. Memb. Am. Soc. C. E., Am. Soc. Prom. Eng. Educ., National Cement Users Assoc. and Nat'l Geog. Soc.† Consulting Engr. for reinforced concrete construction, etc. Chairman of the Commission on Relief of Street Congestion.

**William Hazelton Puffer.** Mining. Gen. Mgr. La Tula Mining Co., 253 Broadway, New York, and Guanajuato, Mexico. Also Am. Mgr. of the Guanajuato Amalgamated Gold Mines Co., La Luz, Guanajuato, and 100 Broadway, New York. Memb. Am. Soc. C. E.† (1910)

*Charles Frederick Robinson, A.M., S.T.B.* Pastor of Central Congregational Church, Derry, N. H. Res. 11 Crescent St., Village Station, Derry.

## 1893

**Herman Edward Abbott.** Asst. Eng. East Jersey Water Co., Paterson, N. J. Res. 158 Ellison St.† Also consulting practice.

**Edwin John Morrison.** Chief Eng. Hastings Pavement Co., 25 Broad St., New York. Vice Pres. Asphalt Block Pavement Co., Toledo, Ohio. Res. 27 Landscape Ave., Yonkers, N. Y. Has been about seventeen years with this company, and responsible director in the successful execution of many large contracts in the Eastern and Middle states, in which opportunities have been found for the employment of a considerable number of THAYER SCHOOL men from year to year. Member of the Chamber of Commerce.† Pres. of the Dartmouth Club of New York, 1909-10.

**John Walker.** Lumber manufacturer and dealer in timber lands, Newmarket, N. H. Pres. of Sable Lumber Co., L't'd. About 60 sq. miles timber tracts in Nova Scotia, six miles of stan-

dard gauge railroad for development. Capital \$200,000. Office: Newmarket, N. H.; Mills: Sherburne and Queen's Counties, N. S.

**Sidney Grant Walker, B.S.** Lately Civil Eng. and Contractor in Hawaii. Since 1905, Insurance Engr. for the Manufacturers, Rhode Island, Mechanics, State, Enterprise, and American Mutual Fire Ins. Co's., John R. Freeman, President, 815 Banigan Bldg., Providence, R. I. Memb. Am. Soc. M. E.†

#### 1894

**Percy Lovejoy Barker, B.S.** (New Hampshire College.) Supervisor of Bridges and Buildings, N. Y. C. & H. R. R. Co., Jersey Shore, Penn.†

**Edward Monroe Stone, B.S.** (New Hampshire College.) Civil and Mech. Engr. and Architect, 49 Pearl St., Hartford, Conn. Memb. Conn. Soc. Civ. Engrs. Home address: 11 Summer St.

**Henry Allan Symonds.** Consulting Eng. 79 Milk St., Boston, Mass.; hydraulic work and water supply a specialty, including management of works. Res. 100 White St., Waverly, Mass. Memb. Boston Soc. C. E. and New Eng. Water Works Assoc.†

#### 1895

**William Marston Ames, B.S.** Contracting and General practice, Berwick, Me.

**Fred Rufus Davis.** Inspector Assoc. Factory Mutual Ins. Co's, until Sept. 1, 1911. 810 Denckla Bldg., Philadelphia, Pa. Perm. Goffstown, N. H. Assoc. Memb. Am. Soc. C. E. and National Fire Protection Assoc.†

**William Hayden Ford, B.S.** Lately Chief Engr. Phila. and Western Ry. between Philadelphia and Parkesburg. Civil and Consult. Engr. 1024 Arcade Bldg., 15th and Market Sts., Philadelphia, Pa. Memb. Am. Soc. C. E. and Engrs. Club of Philadelphia.† (1910)

**Arthur Benjamin Ilsley, B.S.** Bridge Engineer, Southern Ry., 1300 Penn. Ave., Washington, D. C. Res. 1722 Kilbourne Place, N. W. Assoc. Memb. Am. Soc. Civ. Engrs.†

**John Young Jewett, B.S.** (New Hampshire College.) Cement Expert, U. S. Reclamation Service, having supervision of all matters relating to purchase, test, and shipment of cement for the Service. Headquarters at 408 Commonwealth Bldg., Denver, Colo. Assoc. Memb. Am. Soc. C. E. Memb. Am. and International Soc. for Testing Materials, and Nat'l Assoc. Cement Users.†

**\*\*Robert Doty Maynard, A.B.** Died in Springfield, Mass., May 26, 1906.

**George Woodbury Parker, B.S.** Since Oct. 18, 1905, firm of Welsh and Parker, Civ. Engrs. and general insurance agents, Hudson, Mass.

**William Collins Phelps, B.S.** Principal Assistant Engineer, Interborough Metropolitan Co., 165 Broadway, New York City. Perm. address: 3 Hancock Park, Cambridge, Mass. Memb. Am. Soc. C. E.†

**Herbert Russell Thurston, B.S.** Reported by W. B. Plumer of 1897 to be with the Assoc. Factory Mut. Fire Ins. Cos., 31 Milk St., Boston, Mass. Home address: 27 Prospect St., Somersworth, N. H.†

**Frank Hamant Trow, B.S.** Lately Div. Engr. on construction of Wachusett Dam for Met. Water and Sewerage Board, Clinton, Mass. Since Oct. 1, 1908, Chief Engr. for MacArthur Bros. Co.—Winston & Co., on the contract for the main dams for the Ashhokan reservoir, Brown Station, N. Y. Assoc. Memb. Am. Soc. C. E.

*Arthur Allan Adams, B.S.* For many years Superintendent of Streets and Sewers, Springfield, Mass. Pres. of the firm of Birnie, Adams & Ruxton Construction Co. Res. 78 Westminster St.†

*Charles Timothy Rossiter, B.S.* Farmer and cattle breeder, Claremont, N. H. In a letter not long ago testified to the value of college work as contributing decidedly to large success in his occupation, to which he was impelled by ill health. (1910)

*Benjamin Franklin Welton, B.S.* Examining engr., Commissioners of Accounts, 280 Broadway, New York City. Assoc. Memb. Am. Soc. C. E. Res. at 1 Weiner Place, Tompkinsville, New York City.†

1896

**Edwin Roscoe Davis, B.L.** Div. Eng. on construction of viaducts of reinforced concrete on the Key West Extension of the Florida East Coast Ry. Marathon, Fla. After four years writes, "Looks like as many more."† (1910; letter of 1911 returned unclaimed.)

**\*\*Frederick Reginald French.** Lately Assistant Chief Engineer and Mech. Engr. for E. K. Smoot, harbor works, Manzanillo, Mexico. Died Nov. 20, 1904, at Santa Barbara, Cal. (See Annual for 1905.)

**William Harry Langmaid, B.S.** Permanent address: Pike, N. H. With the Pike Mfg. Co. (quarries and factories in Ark., Ind., Vt., and Littleton, N. H.) during the past eleven years, surveys and office work.

**John Henry Letteney, B.S.** Contractor for dredging, dock, river and harbor improvements. 101 Tremont St., Boston, Mass. Res. 18 Allerton Road, Newton Highlands, Mass.†

**Samuel Julian Lord, M.L.** Chief Engineer of the City of Manchester, N. H., and head of the Board of Street and Park Commissioners. Mr. Lord has made the office of the city engineer a recognized and popular "institution" of the city.†

**George James McIndoe, B.S.** Asst. Eng. in charge of construction department, Hastings Pavement Co., 25 Broad St., New York City. Res. 2685 Heath Ave., Bronx Borough.†

**Arthur William Stone, B.S.** Engineer on construction, and Gen. Supt. of Works, for Wm. Bradley & Son, Cut Stone Contractors, New York and Brooklyn, Cleveland & Bedford, Ind. 547 Vernon Ave., Borough of Queens, New York City.† Perm. Hartford, Vt. (1910)

*Harlan Augustus Cochran, B.S.* Permanent address: West Derry, N. H. Since Feb., 1905, associated with the Perkins Hardy Co., Shoe Mfg., West Derry, N. H. (1909)

*Charles Arthur Holden, B.S.* Graduate, T. S. C. E. 1901. (See beyond.)



**\*\*Alexander Anderson McKenzie, B.S.** Died at Hanover, N. H., August 25, 1904. Was Supt. of Bldgs. and Engr. for Dartmouth College. (See Annual for 1904.)

## 1897

**\*\*Sidney Willis Bowles.** Died at Easton, N. H., March 7, 1902. Was Forester and Overseer of Dartmouth College Grant, N. H. (See Annual for 1902.)

**Henry Norwood Chase, B.L.** U. S. Junior Engr., since August 3, 1904, on harbor improvement, U. S. Engineer Office, 25 Pemberton Square, Boston, Mass. Address: 83 Highland Road, W. Somerville, Mass. Home address: West Harwich, Mass. (1909)

**Moses Harry Hoyt, B.S.** Asst. Chief Draftsman, Belmont Iron Works, 22nd St. and Washington Ave., Phila. Res. 102 E. Franklin St., Media, Penn. Perm. 92 Charles St., Fitchburg, Mass. (1909)

**Samuel Alexander McCoy, B.S.** Since July 18, 1909, member of the firm of Boynton, Church & McCoy, Contractors, 603 German Life Bldg., St. Paul, Minn. "Handling general railroad construction in the Northwest." Present address: Spokane, Wash. Memb. Am. Soc. Civ. Engrs.†

**Hugh Burdette Tabor, B.S.** With U. S. Steel Product Export Co., 30 Church St., New York City. Now Asst. Gen. Representative U. S. S. P. Exp. Co., 544 Bartolomé Mitre, Buenos Aires, Argentine Republic, S. A. Home address: Hanover, N. H.†

**Edward Jothan Johnson, B.S.** Lately City Engineer, Nashua, N. H. Now Civ. Eng. Spokane, Wash., 511 Paulsen Bldg. Res. 841 Cliff Ave. Memb. N. E. Water Works Assoc., and Boston Soc. C. E.†

**William Blaisdell Plumer, B.S.** Asst. Supt. Plan Dept., Assoc. Fact. Mut. Ins. Cos., 31 Milk St., Boston, Mass. Inspector of mills in United States and Canada.

**\*\*Herbert Augustus Rowe, B.S.** Died at Holyoke, Mass., October 8, 1901. Was Mill Engr. for Tower and Wallace. (See Annual for 1902.)

*Herbert Andrew Warden, B.S.* One year post-graduate study at Cornell University. Electrical Engr., 14 South Water St., Newburg, N. Y. (1910)

## 1898

**James Leland Averill.** (C. E. Norwich University, also.) Ch. Eng. for Hamilton & Chambers, 29 Broadway, New York City, since May 15. Perm. Northfield, Vt.† Assoc. Memb. Am. Soc. C. E.

**William Hoyt Balch, B.S.** Eng. Aberthaw Construction Co., Boston, Mass., up to 1908. Since March 1, 1909, Asst. Director, Direccion de Obras Publicas, Republica Dominicana, Santo Domingo City, W. I. Res. Hudson, Mass. Memb. Am. Soc. C. E.†

**Maurice Fritchley Brown, B.S.** Chief Engineer Boston Bridge Works, 47 Winter St., Boston, Mass. Res. Winchester. Memb. Am. Soc. C. E., of Boston Soc. C. E., and of Am. Ry. Eng. and Maint. of Way Assoc.†

**William Hale Ham, B.S.** Since March, 1909, consulting eng. and expert with French & Hubbard, Cons. Engrs., Albany Bldg., Boston, Mass. Res. 37 W. Bourne Road, Newton Center, Mass.† Memb. Am. Soc. C. E. Memb. Soc. for Testing Materials. Memb. Nat. Assoc. of Cement Users. Chairman Comm. on Insurance, N. A. C. U.

**John Laroy Mann, B.A.** Lately Assoc. Professor in Civil Engineering at the THAYER SCHOOL OF CIVIL ENGINEERING. Asst. Engr. Reclamation Service, Belle Fourche project, Jan., 1905, until 1908. Since then Ingeniero del Gobierno, Dept. Public Works, Dominican Republic, W. I., in the following capacities: Engineer Director of Irrigation in Monte Cristi; Acting Director General; Chief Engr. Ferrocarril del Norte. Memb. Am. Soc. C. E. Memb. Soc. for Prom. Eng. Educ.†

*Harold Bemis Shattuck, B.S.* Assoc. Professor of Civil Eng., Penn. State Coll. Res. 122 West Beaver Ave., State College, Penn. Degree of B.S. in Civil Engineering from Pennsylvania State College, June, 1904. Memb. of Soc. for Prom. Eng. Educ. Perm. 17 Orange St., Nashua, N. H.

## 1899

No graduates. The seven members of this class were granted leave of absence for one year to accept professional employment. All the members were graduates of Dartmouth College in 1898. Three were graduated from the THAYER SCHOOL in 1900, one in 1901, and one in 1903.

*Myron George Littlefield, B.S.* Since July 20, 1908, draftsman, McClintic-Marshall Construction Co., Rankin, Pa., where he may be addressed.

*Oscar Persons Tabor, B.S.* Draftsman for the Norcross Bros. Co., Worcester, Mass. Address: 286 Lincoln St.

## 1900

**Henry Wallace Clark, B.S.** Home address: Derry, N. H. Lately in contracting at Buckhannon and Morgantown, W. Va. Reported as Supt. of Construction for the Powell River Paper Co., Brit. Col., up to March. No report since.

**John Alfred Gilman, B.S.** Civil and Mining Engineer in Greenville, Ky. Gen. Mgr., Sec. and Treas., Greenville Light and Water Co. Made plans, sold stock, organized company; constructed 25 million gall. reservoir, pumping system, lighting plant, and 15 ton ice plant; value, \$50,000; "working finely."

**Albert Henry Greenwood, B.S.** Since April 1, 1910, in private practice, firm of Greenwood & Noerr, Cons. Engrs., 847 Main St., Hartford, Conn. Res. 39 Capen St. Asso. Memb. Am. Soc. C. E. Memb. Conn. Soc. C. E.†

**George Henry Nolan, B.S.** Manager of the Cuba branch of the Snare and Triest Co., 143 Liberty St., New York City. Box 733, Havana, Cuba. Perm. Middleboro, Mass.†

**Luther Stevens Oakes, B.S.** Lately Div. Eng. Great Northern and Northern Pac. Rys. Member of the contracting firm of Winston Bros. Co.; constructed the Ch. Mil. & St. Paul Ry. through Bitter Root Mts. Address: 801 Globe Bldg., Minneapolis, Minn. Perm. care Dr. H. Burbridge, Woodstock, Vt. Assoc. Memb. Am. Soc. Civ. Engrs.†

**Herbert Leslie Watson, B.S.** Electrical Dept., N. Y., N. H. & H. R. R. Office Bldg. New Haven, Conn. Res. 201 Ellsworth Ave. Perm. Care of D. A. Watson, 315 Young St., Manchester, N. H.† Designing steel supports for overhead electrical system on the six-track branch from New Rochelle to Harlem River yards.

**Thomas Tupper Whittier, B.S.** Assistant Engineer for George F. Hardy, Mill Engr., 309 Broadway, New York City; located in the home office. Home address: 395 Adelphi St., Brooklyn, N. Y. Memb. Am. Soc. C. E.†

**Philip Harold Winchester, B.S.** Since Jan. 1, 1910, Div. Engineer, St. Lawrence Div., N. Y. C. & H. R. R. R. Res. 303 Ten Eyck St., Watertown, N. Y. Assoc. Memb. Am. Soc. C. E.†

*\*\*John McQuesten French, B.S.* Died suddenly August 29, 1906. (See Necrology in Annual for 1906.)

*Albert Leet Galusha, B.S.* A. L. Galusha & Co., 215 Norfolk St., Dorchester Center, Mass. Manufacturing marine and land gas producers for power purposes.

*John Leonard Sanborn, B.S.* Student two years; failed to qualify for graduation. Reported to be with Elmore & Hamilton, Jamaica, Long Island, N. Y. (1909)

*Edward Beaumont Wardle, B.S.* Engineer in charge of construction of pulp and paper mills for Geo. F. Hardy, Mill Engr. (Dartmouth Coll., 1888), 309 Broadway, New York City. Duties chiefly at the home office. Home address: 16 Daily St., West Nutley, N. J. Memb. Am. Soc. C. E.†

#### 1901

**John Albert Anderson, B.S.** 416 Third St., Baton Rouge, La. Dealer in books, stationery, school books, pictures, music, and college supplies.

**Alvah Tennant Fowler, B.S.** Topographer, U. S. Geological Survey, Washington, D. C. Perm. 117 Center St., Concord, N. H. Member of National Geographic Soc. and Washington Soc. Engrs.† In 1909, topographer in upper Sacramento Valley, Calif., coöperating with the State on projects for drainage and irrigation. Lately making a profile survey of the Deschutes River, Oregon.

**Charles Arthur Holden, B.S.** Professor of Civ. Eng., THAYER SCHOOL OF CIVIL ENGINEERING, Hanover, N. H. Memb. Am. Soc. for Prom. Eng. Education. Assoc. Memb. Am. Soc. C. E. Memb. National Geog. Soc. Local practice as Surveyor and Civ. Eng.†

**Charles Hamilton Hoyt, B.S.** Perm. Care F. H. Hoyt, Nashua, N. H. Supt. of Road Construction, Office of Public Roads, in charge of Division of Highway Bridge Eng., Washington, D. C. Lately assigned as expert advisor to Governor Bass on the State Roads of N. H. Degree of LL.B. from National Univ. Law School, June, 1911.†

**William Loveland Hutchinson, B.S.** President of the Prolific Oil and Gas Co. Res. at Cecil, Washington Co., Pa., 20 miles from Pittsburg, where he is also managing his own stock farm.

**Clarence Erwin Paddock, B.S.** Lately with Berlin Construction Co., Berlin, Conn. Since Sept. 1, 1909, Teacher of Mech. drawing, etc., Springfield (Mass.) Technical High School. Res. 13 Northampton St., Springfield, Mass.

**Charles Sargent, B.S.** Asst. Eng. U. S. Reclamation Service, Mitchell, Neb. Perm. Walpole, N. H.

**Frank Dana Sears, B.S.** Supervising Prefect of Girard College, Philadelphia, Pa.

**Samuel Justin Smith, B.S.** Lately Asst. Eng., North Pacific R. R. Member of contracting firms of G. A. Carlson & Co., and Carlson, Chindahl & Co., railroad contractors, 322 Fernwell Bldg., Spokane, Wash. Perm. Windsor, Vt.

**\*\*John Hutchinson Wood, B.S.** Lately Assistant Engr., Dept. of Public Works, Bureau of Water, Pittsburg, Pa. (See Annual for 1910.)

*John William Ash, B.S.* Lately Asst. Eng. for Southern Railroad. Civil Engr. and Contractor, Dalton, Ga. Res. at Austell, Ga. Building waterworks, including concrete reservoir and also an electric light plant for the city.†

*Edgar Randall Cate, B.S.* Lately member of firm, New Jersey Boiler Co., Boonton, N. J. Pittsburg representative of Westinghouse, Church, Kerr & Co., 10 Bridge St., New York City. Address: Union Bank Bldg., Pittsburg, Pa.†

*Jasper Manlius Gibson, B.S.* Lately with Post & McCord. Now Sec. and Treas. Mulcahy & Gibson, Inc., contractors and engineers, steel structures. 381 4th Ave., New York. Res. East Williston, Long Island.†

*Charles Augustus Rich, B.S.* Returned from South Africa in April, 1905. Supt. of underground electrical construction and distribution for Peoria Gas & Electric Co. Res. 3116 Western Ave., Peoria, Ill.

*Wilfred Carey Risley, B.S.* Field Engineer of the Dominion Iron & Steel Co., P. O. Box 2, Sydney, Nova Scotia. On construction of 120 by-product coke ovens, two 300-ton blast furnaces, two 500-ton open hearth furnaces, bar, wire, and nail mills, power plant, water supply, sewers and ry. tracks, and a steam turbine plant.† (1910)

*Horace Holmes Sears, B.S.* Lately Cons. C. E. Now: Sears Advertising and Magazine Agency, P. O. Box 95, Sacramento, Calif. Perm. 14 Charles St., Hyde Park, Mass. Charter Memb. of the Sacramento Civil Engrs. Assoc.†

*Embert Hiram Sprague, B.S.* After residence of six years returned from South Africa, Sept., 1909. Engr. for Mulcahy and Gibson, 381 4th Ave., New York City. While in Paris inspected new Metropolitan tunnel under the Seine. (1910)

## 1902

**John Gilbert Andrews, B.S.** Contracting Engr. Boston Bridge Works, Inc., 47 Winter St., Boston, Mass. Res. 284 Franklin St., Newton, Mass. Memb. Boston Soc. Civ. Engrs.†

**Charles Richard Chase, B.S.** Asst. Eng. in charge of contract No. 42, Barge Canal, Dept. of New York State Engineers. Barge Canal Office, Whitesboro, N. Y. Res. 83 Oneida St., Utica, N. Y. Perm. Rochester, N. H. 3d Vice-President Albany Soc. C. E. Memb. Soc. of Engrs. of Eastern New York.

**John William Crowell, B.S.** Since Oct. 1, 1905, Professor of Civ. Eng. at Mt. Allison University. P. O. Box 35, Sackville, N. B., Canada.

**Frank Ezekiel Cudworth, B.S.** Lately Assistant Engineer Phoenix Bridge Co., and Inspector of dry dock No. 4, Navy Yard; also with the Caisson Co., New York City. Now Engr. for Holbrook, Cabot & Rollins Corporation, on Contract No. 67, Catskill aqueduct tunnels under East River, N. Y. Res. 331 Madison Ave., New York City. Memb. Am. Soc. Eng. Contractors.†

**Donald Derickson, B.S.** Assistant Prof. of Civ. Eng., Dept. of Bridge and Structural Engineering, Cornell University, Ithaca, N. Y. Private practice, designs and reports on bridges and structures of reinforced concrete.

**Edgar Hayes Hunter, B.S.** Superintendent of Buildings for Dartmouth College, Hanover, N. H. Supervising improvements and erection of new buildings; seasons of 1909-10, the new gymnasium, new administration building, new operating theatre in the hospital, etc.

**James Bradford McIntyre, B.S.** Gen. Foreman of Erection North Works Ill Steel Co., Chicago, Ill. P. O. Box 958, Gary, Ind.; perm. Randolph, Vt. In charge of steel erection of U. S. Steel Corporation's new plant at Gary, Ind. Memb. Western Soc. of Engrs.

**Francis Beal Marsh, B.S.** Since May 10, 1907, Asst. Engr., N. Y. Board of Water Supply, Designing Dept., 165 Broadway, New York City. Home: 510 West 135th St., New York City. Assoc. Memb. Am. Soc. Civ. Engrs.†

**Frank Warren Newhall, B.S.** Since Feb. 1, 1908, Chief Engr., Coke Works of Republic Iron & Steel Co. Address: Republic, Fayette Co., Pa. Perm. Danvers, Mass.†

**Arthur Henry Norris, B.S.** Lately Asst. Engr. Union Pac. R. R. Since Nov., 1907, in private practice, Dodge County Court House, Fremont, Neb., largely drainage work. In charge of preliminary surveys and construction for a drainage system for about 40,000 acres. Perm. 40 Pond St., Hyde Park, Mass. Since Nov., 1908, deputy county surveyor.

**Warren Fuller Rugg, B.S.** Asst. Engr. N. Y. Board of Water Supply. Since April 1, 1909, Asst to Section Engr. on construction of Catskill Aqueduct, including open cut, grade tunnel and steel pipe siphon. 767 Elm St., Peekskill, N. Y. Perm. 29 Cottage St., Ware, Mass. Assoc. Memb. Am. Soc. C. E.†

**Everett Mellen Stevens, B.S.** President of Nashua Granite Co., 254 Main St., Nashua, N. H. May, 1909, to May, 1911, salesman, Bundy Dept. Am. Radiator Co., 129 Federal St., Boston, Mass.† Asst. Sales Mgr., Nashua Machine Co., 127 Federal St., Boston, Mass.

**Albert Lyman True, B.S.** While serving as Jun. Eng. U. S. Eng's. Office, mysteriously disappeared, March 10, 1906, from Portland, Me. Jas. S. Smith, a classmate, who has used every effort to solve the mystery, reported: "There is nothing known that can demonstrate that he is dead or alive."

*Earl Francis Whitaker, B.S.* Since May 1, 1909, Purchasing Agent for J. H. Williams & Co., drop forgings, 150 Hamilton Ave., Brooklyn, N. Y. Address: 7815 4th Ave., Brooklyn.†

### 1903

**Carroll Worthen Davis, B.S.** Until May, 1910, Supt. of construction, Harlem Contracting Co., 2 Rector St., New York. Present address unknown.†

**Royal Belden Doane, B.S.** Draftsman in the Bridge Dept. of Long Island R. R., 44 Union Hall St., Jamaica, Long Island, N. Y.†

**Leslie Boynton Farr, B.S.** President of the Harlem Contracting Co., 2 Rector St., New York. Manufacture and construction of asphalt block pavement. Res. Ft. Washington Ave. and 179th St.†

**Harry Cyrus Hill, B.S.** Appointed, Jan. 1, 1910, by Governor Quinby, State Engineer of New Hampshire; State Engineer's Office, Concord, N. H. Memb. Mass. Highway Assoc.† Has charge of construction of the extensive system of State highways, throughout the entire State.



**Maurice Joseph Leahy, B.S.** Asst. Eng. for Geo. F. Hardy, Mill Architect and Hydraulic Eng., 309 Broadway, New York City. Perm. South Hadley Falls, Mass. Assoc. Memb. Am. Soc. C. E.†

**Locke McIndoe Perkins, B.S.** App't'd Eng. of Maint. of Way of lines west of Paradise, Mont., June 15, 1911; jurisdiction of several thousand miles of railroad. Gen. Office, North Pac. Ry., Tacoma, Wash. Res. 2905 North 19th St. Memb. Am. Ry. Eng. Assoc.

**Harold Edward Plumer, B.S.** Chief Eng. of branch office of Turner Construction Co. of New York, located in Buffalo, N. Y., 312 Prudential Bldg.† Res. University Club, Buffalo, N. Y.

**John Endicott Porter, B.S.** Asst. Eng., office of Engr. of Structures, N. Y. C. & H. R. R. R. Co., New York City. Res. 6 Ashburton Place, Yonkers, N. Y. Assoc. Memb. Am. Soc. C. E.†

**Harold Samuel Richmond, B.S.** (Norwich Univ., Vt.) Designer of structures, N. Y. C. & H. R. R. R. Co. under Engineer of Structures, New York City. Perm. Northfield, Vt.† (1910)

**George Arthur Sampson, B.S.** Assistant to William Wheeler, Civil and Hydraulic Engr., 14 Beacon St., Boston, Mass. Res. 695 Washington St., Brighton, Mass. Memb. Boston Soc. C. E. and New Eng. Water Works Assoc.

**Albert Smith, B.S.** Formerly with the U. S. Steel Co., North Works, Chicago. Prof. of Structural Engineering, Purdue University, Lafayette, Ind. Assoc. Am. Soc. C. E. Memb. Indiana Eng. Soc. Memb. of Western Soc. Civ. Engrs. Fellow of Ind. Acad. of Science.† Address: 1022 Seventh St., West, Lafayette, Ind. Author of "Stresses in Simple Framed Structures."

**Fred Caswell Stanton, B.S.** Asst. Engr. on the Panama Canal, Cristobal, C. Z. Has made plans and specifications for considerable floating plant, and preliminary investigations and reports on the Colon breakwater. Perm. Vinyard Haven, Mass. Assoc. Memb. Am. Soc. C. E.† In charge of construction of Colon breakwaters, excavation at Mindi and surveys in Harbor and Channel section. (1910)

**Arthur Clarence Tozzer, B.S.** Superintendent of construction (reinforced concrete) for the Turner Construction Co., 11 Broadway, New York City. Perm. 62 Nahant St., Lynn, Mass. Assoc. Memb. Am. Soc. Civ. Engrs. Memb. Engineers' Club, New York.† Has had charge of a number of large reinforced concrete buildings, notably one at Springfield, Mass., 9 stories high. During the past year completed or has under way eleven structures aggregating about four million square feet of floor space, or about 90 acres.

**John Walker, B.S.** Feb. '06, resigned as Div. Engr. Mississippi Div. Ill. Cent. Ry. (owing to wife's health). Mining surveys, Breckenridge, Col. Oct., 1906-July, 1910, draftsman in Construction and Maint. of Way, Depts., U. P. R. R. Since that Asst. City Eng. of Cheyenne, Wyo. Res. 522 West 21 St.†

**Arthur Ellsworth Winslow.** (C. E. Norwich Univ.) Professor of Civil Engineering, Norwich University, Northfield, Vt. Assoc. Memb. Am. Soc. C. E.

*Herbert Carroll Adams, B.S.* Checker for Am. Bridge Co., Elmira plant. Address: Elmira Heights, N. Y. (1909)

*Herman Keidel Clifford de Anguera, B.S.* Graduated from Rochester Theological Seminary in May, 1909. Religious work as director of Y. M. C. A. at Worcester, Mass. Res. 10 Elm St.

*Harry Wilfred Fitts.* Chief estimator and designer for the New England Structural Co., 110 State St., Boston, Mass. Res. 51 Pembroke St., Newton, Mass. Memb. Boston Soc. C. E.† (1910)

*Arthur Weston Hare.* Since Aug. 1, 1906, with Commr. of Public Works, Borough of Richmond, New York City. Designing and estimating on sewer extensions. Res. 119 Dongan St., West New Brighton, Borough of Richmond.† (1910)

*Clarence Kent Hosford, B.S.* Lately Asst. Eng. U. S. Reclamation Service. With St. Croix Paper Co., Woodland, Me. Building houses and a large saw-mill. Home address: North Thetford, Vt. Engineering and surveys. Vt. Legislature, 1908.†

*George Willard Newman, B.S.* Supt. for Cia Carbonifera "Agujita y Anexas", S. A., "Mineral de Lampacitos"; since Jan. 15, 1910. Baluarte, Coahuila, Mexico. Perm. 49 Union St., Keene, N. H. (Nov. 1910)

*Thomas Richard Remsen, B.S.* Engineer for George F. Hardy, Mill Architect and Hydraulic Engr., 309 Broadway, New York. Assoc. Memb. Am. Soc. C. E.† Home address: 283 Jefferson Ave., Brooklyn, N. Y. (1909)

*Chester Arthur Studwell, B.S.* Assistant to Fred S. Odell, Civil Eng., Port Chester, N. Y. Res. 72 Washington St.† (1910)

## 1904

**Harold Dearborn Comstock, B.S.** Asst. Eng., U. S. Reclamation Service, lately on Belle Fourche project; transferred to Pathfinder dam, Dec., 1909; Pathfinder, Wyo. Perm. Chelsea, Vt. Asst. Engr. for Denver Reservoir & Irrigation Co., Nov., 1908, to Feb., 1909. Assoc. Memb. Am. Soc. C. E.†

**John William Mair.** Lately Engr. for Marc Eidlitz & Son, general contractors, New York City. Res. 100 W. Lincoln Ave., Mt. Vernon, N. Y. Assoc. Memb. Am. Soc. C. E.† (1910)

**Harold Marston Morse, B.S.** Lately Supt. of Construction on a paper mill at Erving, Mass., inc. dam and power house. Now Supt. Const. for S. M. Green, Inc., 318 Main St., Springfield, Mass., building Troy Boys' Club bldgs. and mills of the Manning Sandpaper Co., at Watervliet, N. Y. Perm. Hanover, N. H.

**Fred Wheeler Osgood, B.S.** Lately Asst. in the office of Hazen & Whipple, on designs for filtration plants. Since May, 1909, Asst. Engr. for New York Board of Water Supply, plans and estimates for Southern Aqued. Dept. Sect. No. 4, White Plains Div. and Sect. No. 2. Address: 14 Hillside Ave., White Plains, N. Y. Perm. Dunstable, Mass. Oversight of cut and cover aqueducts and steel-pipe siphons.

**Carroll Paul, B.S.** (Son of Prof. H. M. Paul, 1875.) Since Aug. 1907, Asst. Civ. Engr. U. S. N. Lately on duty at Bureau of

Yards and Docks, Navy Dept., Washington, D. C., in charge of construction, maintenance, and operation of central power plants, at the Navy Yards. After June 1, at Cavite, Luzon, P. I.

**Frank Stewart Perham, B.S.** During the past five years chiefly in Florida as Eng. and Supt. of Construction for Bryan & Co., and others. Has constructed water-works, a \$100,000 railroad underpass and viaduct in Jacksonville, septic tanks, a reinforced concrete cistern, 1,500,000 galls. for the U. S. Naval Station, Key West, Florida, etc. Address: P. O. Box 315. (Recent inquiry returned "unclaimed.")

**George Albert Reed, B.S.** Since April, 1907, City Engineer of Barre, Vt. Home address: 34 Orange St., Barre. Lately built a large storage reservoir for the city of Barre, and changed the course of the river by extensive excavation and training walls.

**Howard Leon Ropes, B.S.** Since June, 1910, transitman, and now Supervisor of bridges and bldgs., N. Y. C. & H. R. R. R., St. Lawrence Div.† Res. 139 Winslow St., Watertown, N. Y. Perm. 67 East Quincy St., North Adams, Mass.

**Albert Henry Schilling, B.S.** Contracting Engr. for Berlin Construction Co., Berlin, Conn. Bridges and all steel structural work. Res. 29 Lincoln St., New Britain. Memb. Conn. Soc. C. E.

**Sherman Smith, B.S.** Asst. Eng. Grand Trunk Pac. Ry., Melville, Saskatchewan, Canada. In charge of all engineering work on a division 1,000 miles long. Assoc. Memb. Canad. Soc. C. E. Memb. Am. Ry. & Maint. of Way Assoc.

**\*\*Ralph Carroll Soper, A.B.** Lately Asst. Eng. U. S. R. S., Shoshone project. Drowned, June, 1910. (See Annual for 1910.)

**Carl Burpee Worthen, B.S.** Since Aug., 1908, Supt. of construction on Los Angeles aqueduct, Saugus Div., Section I. Ricardo, Calif.† Perm. 103 Youle St., Melrose, Mass. (1910)

**Harold Miner Hess, B.S.** Since Apr. 1, 1911, Chairman Missouri Actuarial Bureau (Fire Insurance), Pierce Bldg., St. Louis, Mo. Res. 1215 Amherst Place.

**Byron Wynne Matteson, B.S.** Since Oct., 1907, Asst. Eng. with City Engr. of Los Angeles, Cal. Res. Huntington Park, Los An-

geles Co., Cal. Memb. Engrs. & Architects Assoc. of So. Cal. (1910)

*Oscar Alexander Mechlin, B.S.* Degree of C. E. Geo. Washington Univ., 1906. Asst. Prof. of Civ. Eng. in that university from Sept., 1908. Address: 1517 H St.; home: 3203 R. St.; Washington, D. C. - Memb. Washington Soc. Engrs. (1909)

## 1905

**Owen Long Burdett, B.S.** Since July, 1909, Asst. Engr. in charge of Barge Canal contract, No. 19, excavating, concrete work, bridges, etc., 12 miles. New York State Engr's. Dept. Res. 48 North Ashland Ave., Buffalo, N. Y.; perm. Wakefield, Mass.† (1910)

**Harold Newton Cross.** Formerly Eng. Aid, U. S. Reclamation Service;—also with the Hudson Companies, Hoboken, N. J. Home address: Atkinson, N. H. Now in the fruit canning business.—E. E. Sawyer & Co. (1910)

**\*\*Nelson Ford McClary, B.S.** Died in Ecuador, So. America, Nov., 1905. (See Annual for 1906.)

**Franklin Henry Stowell, B. S.** Lately Supt. of Construction for D. H. Burnham & Co., Chicago, Ill. Now General Contractor, 1200 Tribune Bldg., Chicago. Perm. 8 Westfield St., Worcester, Mass. Memb. Western Soc. Engrs.†

**Crosby Tappan.** Construction Eng., Cumberland Valley R. R. (branch of Penna. R. R.). Has built seven miles of double track, concrete culverts, up to 20 ft. span, highway arches, a 100 ft. reinforced concrete arch, 32 ft. rise, elliptical, and one 60 ft. arch. (See Eng. News, April 8, 1909.) Address: General office of this road, or Glen Apartments, Chambersburg, Pa. (1910)

**Morton Owen Withey, B.S.** Asst. Prof. in Rational and Applied Mechanics, and in the testing laboratory, University of Wisconsin, Madison, Wis. Res. 1633 Madison St. Memb. Am. Soc. Testing Materials, Eng. Soc. of Wisconsin, and Soc. for Prom. Eng. Educ.† Author of bulletins and papers on tests of reinforced concrete beams and columns. (See Eng. Record for July, 1909, and July, 1910.)

*John Francis Doonan, B.S.* Since Oct., 1908, with N. Y., N. H. & H. R. R. Co., on surveys and estimates for grade crossing changes, line revision, etc. Res. Hotel Miller, Great Barrington, Mass. Perm. Greenville, N. H.†

*John Hibbard Fellows, B.S.* Graduate in mechanical engineering, Mass. Inst. of Technology, B.S. degree, 1906. Manager of the Niles plant of the Stanley Works, Niles, Ohio. Perm. Tilton, N. H.

*George Alexander Lewis.* Served on the engineering force of the Isthmian Canal Comm., Aug., 1904, to April, 1905. Perm. Hingham, Mass. Supt. Construction on the R. T. Crane Estate, Ipswich, Mass., since Apr., 1911. Res. 8 Fruit St.

*Wayne Arthur Perkins, B.S.* Asst. Engr., U.S. Recl. Service, on Salt River project to June, 1908. In 1910 in charge of the Pecos River project of the Texas Orient Development Co., for Bull & Witham of Denver, Col. Reported by Welch in Aug., 1911, on U. S. Recl. Serv., Supt. construction at Tower, Two Medicine Dam.

#### 1906

**James Seth Adams, B.S.** Before April, 1911, construction engineer for the Western Electric Co. Since then general contractor for building construction, 901 Plymouth Building, Chicago, Ill. Res. 112 South East Ave., Oak Park, Ill.

**Walter Abbott Conley, B.S.** Draftsman, Empire Bridge Co., Elmira, N. Y. Res. 635 W. Church St., Elmira.† Perm. 67 Spruce St., Portland, Me.

**Charles Francis Goodrich, B.S.** Designer and estimator, American Bridge Co., bridge dept., New York office, since June, 1910. Address: 915 Carteret Ave., Trenton, N. J., or 10 Larchmont St., Dorchester, Mass.†

**Ralph Leonard Libby, B.S.** Engineer for Corrugated Bar Co., St. Louis, Mo., since Feb., 1911. Perm. 235 Washington St., Dover, N. H.

**Hope Richard Messer, B.S.** Lately draftsman and designer, office of Hazen & Whipple, New York. Since May 1, 1910, Sanitary Engineer, Dept. of Health, Virginia; 1110 Capitol St., Richmond, Va. Perm. Claremont, N. H. Junior, Am. Soc. C. E. Memb. Am. Water Works Assoc.

**Harrie Langdon Muchemore, B.S.** Lately Prin. Asst. Civilian Engr. on construction of dry-dock No. 4, New York Navy Yard. Now Supt. Construction for C. F. Graff, Seattle, Wash., building pier No. 8 at the Puget Sound Navy Yard. Address: Kilsap Inn. Perm.-263 Cass St., Portsmouth, N. H. Junior Am. Soc., C. E.†

**Harrison George Roby, B.S.** Asst. Engr. to Prof. D. W. Mead, Consulting Engr., 530 State St., Madison, Wis., and Nat. Bank Bldg., Chicago, Ill. Res. Eng. in charge of construction of 5000 h. p. hydro-elect. plant, on the Menominee River, near Iron Mt., Mich. Perm. Whitewater, Wis.

**William Thomas Shaw, B.S.** Asst. Engr., Boston Elev. R. R. on new Cambridge subway, 2 Central Sq., Cambridge, Mass. Perm. Middleboro, Mass. In Aug. was obliged to go to a Sanatorium. Present address (Sept., 1911), Greencastle, Franklin Co., Pa. Assoc. Memb. Am. Soc. C. E., Memb. Boston Soc. C. E.†

**Leon Burdett Smith, B.S.** Asst. Engr. Division of Eng. Investigation, Bureau of Water, Dept. of Public Works, Pittsburg, Pa. Res. 621 N. St. Clair Street. Home address: Derry, N. H.†

**Myron Ellis Witham, B.S.** Lately in charge of construction of the Standley Lake dam, operating 5 steam shovels and 9 trains placing a daily average of 10,000 cub. yds. in embankment which will have a total of five million cub. yds. Now private practice, Bull & Witham, Cons. Engrs., 4111 Commonwealth Bldg., Denver, Col.; or Pigeon Cove, Mass. Assoc. Memb. Am. Soc. C. E. Ch. Eng. for Deer Creek Reservoir and Irrig. Co., the Texas Orient Development Co. of Kansas City (on Pecos river, Tex.), and a project on the Little Colorado river, Ariz. (1910)

**Guy Eric Woodward, B.S.** Lately Res. Eng., North Pac. Ry., on construction of Oregon Trunk Ry. Now partner of firm of Warren & Woodward, Engrs. and Architects, P. O. Box No. 260, Redwood, Ore. Perm. care D. C. Woodward, Randolph, Vt.

*Chester Philbrook Smith, B.S.* Resigned on account of ill health, in the midst of his second year. After three years on a ranch, instrument and draftsman dept. of grade crossings, N. Y. C.

& H. R. R. R., since May 1, 1910. 77 Buena Vista Ave., Yonkers, N. Y., or 335 Madison Ave., Room 1213, New York City. Perm. Norridgewock, Me.

*Frank Nelson Tinker, B.S.* (Norwich Univ.) Student in residence, Thayer School, second year course. Assoc. Prof. of Civ. Eng., Norwich Univ., Northfield, Vt., 1907-08. A satisfactory thesis not yet presented. Address unknown.

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*George Ralph Colson, B.S.* By Civil Service exam., draftsman and cement tester, U. S. Reclamation Service to Feb., 1907. Asst. Engr. So. Shore Traction Co., Babylon, Long Id., N. Y. Perm. North Billerica, Mass.† (1910)

*Harold Morton Haskell, B.S.* Assistant to the City Engineer, Manchester. Address: 66 Appleton St., Manchester, N. H.

*Fletcher Ames Hatch, B.S.* Asst. Engr. for J. G. White & Co., on Philippine Railway construction, Capiz, Panay Island; Iloilo, P. I., care of Phil. Ry. Co. Perm. care Mrs. A. C. H. Stearns, 66 Glover Ave., Atlantic, Mass.†

*Walter Earle Hawley, B.S.* Designer and estimator for Post & McCord, 44 East 23d St., New York City. Res. 1933 Sixty-third St., Brooklyn, N. Y. Perm. Norwich, Vt.

*Harold D. King, B.S.* Lately Assistant U. S. Coast and Geod. Survey, in charge of primary triangulation related to the 98th Meridian and on transcontinental precise levelling, and main scheme of triangulation, Philippine Ids.; also engaged on determination of gravity throughout U. S. Transferred to Bureau of Lighthouses, May, 1911; since July 1, Inspector 7th Lighthouse Dist., Key West, Fla. Memb. Washington Soc. Engrs.

#### 1907

**Augustine Haines Ayers, B.S.** Division Eng. for Southern Alberta Land Co., Ltd., Medicine Hat, Alberta, Canada. (Address: Suffield.) Perm. No. 8 State St., Concord, N. H. In charge of construction and location of 2d div. of the irrigation system, re-



quiring 3,000,000 cu. yds. of excavation, 3500 cu. yds. concrete in drops, spillways, headgates, etc., and 6500 feet of 8 ft. wood syphon across Bow river, which has a low water flow of 2000 sec. ft.

**Charles Luther Bourne, B.S.** Asst. to the City Engr. of Newton, Mass. Res. 120 Woodbine St., Auburndale, Mass. Since Nov., 1908, with the H. P. Converse Co., Boston (88 Broad St.), reinforced concrete construction, etc. (1909)

**Neil Stanley Buckbee, B.S.** Lately Designer and Asst. Engr. for the General Fireproofing Co., Youngstown, Ohio. Since May 15, Engr. for C. W. Bates, Architect, Wheeling, W. Va. Res. 77 Virginia St., Wheeling.

**Chester McKenzie Everett, B.S.** Draftsman and estimator, in the office of Hazen & Whipple, Consulting Engrs., 103 Park Ave., New York City. Res. 159 West 131 St. Perm. Champlain, N. Y.

**William Henry Fox, B.S.** With Commissioners of Sewerage, Louisville, Ky., drafting and designing. Room 605, Equitable Bulding. Perm. 80 Pearl St., Clinton, Mass.

**\*\*Harry Allen McMore, B.S.** Lately with the General Fireproofing Co., Youngstown, Ohio. Died Oct. 20, 1909. (See Annual for 1910.)

**Vicente Molina, B.S.** In practice as Surveyor and Civil Engr., Merida, Yucatan; Calle 63, No. 469. Since Feb., 1909, Chief Engr. United Rys. of Yucatan, system of 550 miles; reconstructed old lines; prepared plans for and constructed two new lines.

**Fred Foster Parker, B.S.** Lately Asst. Engr. and inspector to the Engr. and Supt. of Bldgs., Dartmouth College. Since Jan. 1, 1911, Asst. Supt. Parker & Young Co., Lisbon, N. H.

**Clarence Irving Peckham, B.S.** (Brown Univ.) Asst. Engr. for Public Service Comm., New York City, in 1908 and 1909; for State Water Supply Comm., power project at Schroon Lake, N. Y., 1909. Now Asst. Eng. for the State Highway Comm. of New York. Perm. 30 Gurney St., Providence, R. I.

**Verney Warren Russell, B.S.** U. S. Reclamation Service; since March 1910, Asst. Eng. in charge of operation and maintenance of the Shoshone Dam and reservoir. Res. Cody, Wyoming. Perm. Norwich, Vt.†

**Watson Burchard Smith, B.S.** Asst. Eng. Union Pac. Ry., on 2d track from Julesburg to Pine Bluffs, Neb. Box 143, Potter, Neb. Perm. 140 North 41st St., Omaha, Neb.

**Carlton Manson Soule, B.S.** Estimator and designer in the office of Eng. of Bridges, B. & O. R. R., Baltimore, Md., 3215 Westwood Ave., Walbrook, Baltimore, Md. Perm. 70 Putnam St., E. Weymouth, Mass.

*Herbert Leslie Boynton, B.S.* With Chi. & N. W. Ry., rodman, topographer, and instrumentman; since Oct., 1908, on construction of new terminal, Chicago. Res. 608 Church St., Evanston, Ill.; perm. 16 Sixth Ave., Haverhill, Mass. Junior Memb. Western Soc. C. E. (1910)

*Joseph Theodore Chase, B.S.* Gen. Mgr. Roanoke Rapids Power Co., having been asst. engr. on construction of the paper mills and development of the water power. Box H, Roanoke Rapids, N. C.; perm. 151 Beech St., Holyoke, Mass. Made plans and specifications for, and built a concrete dam 600 ft. long, and installed several 1,000 h. p. units.

*Henry George Porter, B.S.* With Hazen and Whipple, Engineers for water supply, etc., 103 Park Ave., New York City. Since June 1st inspector on construction of reservoir and pumping station for the Superior Water, Light & Power Co. For the summer, 1022 John Ave., Superior, Wis. Home, Bartlett, N. H.†

*Raymond Collins Wood, B.S.* With Murphy Varnish Co., Newark, N. J. Res. 22½ Chestnut St. Home address: 2 Summit Ave., Haverhill, Mass. (1907)

#### 1908

**Samuel Colcord Bartlett, B.A.** Lately on Grand Trunk Pacific R.R., Canad. North., Howe Sound Pemb. & North. & Chi. Mil. & Puget Sd. Rys. in Brit. Col. and Wash., as rodman, draftsman and instrumentman. In 1910 hydrographic and topographic work as officer on U. S. C. & Geod. Survey Str. Yukon in Cook's Inlet, Alaska. Perm. Hanover, N. H.† Since March, 1911, Supt. of construction for Hastings Pavement Co., 25 Broad St., New York City.

**Ray Wilbur Brown, B.S.** Home address: 268 Locust St., Fall River, Mass. Transitman for Arthur T. Safford, Civ. Eng. on protection of water supply at Fall River, Mass.

**Nathaniel Francis Davis, B.S.** Assistant Manager for the Davis Paper Co., Contoocook, N. H. Res. Contoocook.

**John H. Dunlap, B.A.** Instructor in Civil Engineering, State University of Iowa, Iowa City, Iowa, since Sept. 1909. Res. 311 Brown St., Iowa City; perm. Bennington, N. H.†

**Arthur John Ela, B.S.** Asst. U. S. Coast and Geod. Survey, until 1910. Home address: 96 Stafford St., Worcester, Mass.† Lately in employ of Stone & Webster, Civ. Engrs. and Contractors, Seattle, Wash. Now member of firm, Ela & Kinnear; contract with U. S. Engr. Dept. on construction of jetty for Gray's harbor, Wash.

**Samuel Francis Garvin, B.S.** 109 So. 4th Ave., Mt. Vernon, N. Y. Asst. Engr. N. Y., Westchester & Boston Ry. Co. Perm. Sanbornville, N. H.

**Harry Matt Gray, B.S.** With Hazen & Whipple, Cons. Engrs., 103 Park Ave., New York City. Since April, 1911, res. engr. on construction of Ogdensburg filtration plant for the firm.

**Fred Bacon Greenleaf, B.S.** Member of firm J. A. Greenleaf & Sons Co., Inc., Contractors and Builders, Auburn, Me. Res. 121 Spring St.

**Reuben Hayes, B.S.** Lately with Post & McCord, New York City. Perm. Dover, N. H., R. F. D. Madbury, N. H. Since March, 1911, Asst. Engr., office of Ch. Eng. M. W., Sou. Ry. Co., 1300 Pennsylvania Ave., Washington, D. C.

**Roy Mullins, B.S.** Draftsman, N. Y. C. & H. R. R. Co., Gr. Cent. Sta., New York, to Feb., 1910. Since then Supt. construction for Elliot C. Brown Co. of 27 William St., New York; now at Oyster Bay, Long Id., N. Y.—constructions for a large estate; and a \$50,000 job of grading and concrete sea-wall. Perm. Baldwinsville, Mass.

**Harold Parker, B.S.** Purchasing agent for Aberthaw Construction Co., of Boston, on large bldgs., Lowell, Mass. Since Aug. 13, Office mgr. and asst. to supt. on concrete house for Am. Hide & Leather Co. Perm. 58 Middle St., Portsmouth, N. H.

**Russell Hastings Peck, B.S.** Since Oct., 1910, Engr. of Palmer Land & Water Co., Palmerton, Pa. Perm. Mt. Vernon, N. H.†

**Henry Tyler Pierce.** Asst. Engr. Puerto Rico Irrigation Service, since Oct., 1910; Juana Diaz, P. R.; res. engr. on the Coamo dam.

**Frederick William Welch, B.S.** Asst. Engr. U. S. Reclamation Service, Blackfeet project, Spirit Lake, Mont.; perm. East Lempster, N. H.† Instructor in THAYER SCHOOL OF CIV. ENG., July, 1908, to Sept., 1909, and in State University of Iowa, 1909-1910. During intermediate years, on North Pac. Ry., and Asst. Engr. U. S. Recl. Service on the Laguna dam, Yuma, Ariz.

*Clarence Eugene Ellsworth, B.S.* Asst. Engr., Water Resources Branch, U. S. Geol. Survey, Fairbanks, Alaska, and in the Washington, D. C., office. Perm Wentworth, N. H.† Expected to join the class of 1912.

*Herbert Davis Hinman, B.S.* Under the Panama Canal Comm., since July, 1907; since Apr., 1911, Asst. Engr., Pacific Div.; engineer in charge and Supt. of construction of Pedro Miguel locks and dams. Pedro Miguel, C. Z., Panama. Perm. Groveton, N. H.

*William Rice Kimball, B.S.* Since Feb. 1, 1908, with Jos. T. Ryerson & Son, eng. dept., Chicago, Ill. Res. 300 North Kenilworth Ave., Oak Park, Ill† During 1910, in charge of design, inspection, and erection of a mile and a half of pipe, 84 inches diam., 600 ft. head, for Michoacan Power Co., Villa Senor, Mexico.

*Merton Clark Knapp, B.S.* Junior Eng., U. S. Recl. Service, Sun River project, Fort Shaw, Montana. Perm. 23 N. Lincoln St., Keene, N. H. Apr. to Sept., 1910, asst. engr. in charge of construction on Great North. Ry.

*Nathaniel Hobbs Knight, B.S.* Member of the firm, Knight & Merrill, The Ontio, Ogunquit, Me., or North Berwick, Me. Sub-Master of N. Yarmouth Academy, winter of 1910-11.

*Clarence Erwin Langley, B.S.* From Sept., 1907, under Isthmian canal Comm., and, since April 1, 1909, transitman and Junior Eng., responsible for the lines and grades of the masonry work of the Gatun Locks. Address: Gatun, Canal Zone, Panama.

*Charles Reed Main, B.S.* Graduate, 1909, in mech. eng., Mass. Inst. of Technology. With Chas. T. Main, Mill Engr., 201 Devonshire St., Boston, Mass. Res. 14 Herrick St., Winchester, Mass. Memb. Boston Soc. C. E.

**\*\*Robert Houghton Pearson, B.S.** Lately under the Isth. Canal Comm., as general foreman of concrete placing on the Gatun locks, Gatun, C. Z. Died Jan. 4, 1911. See *Necrology*.

**William Maddock Silleck,** With George H. Fuller Co., Bldg. Construction, 111 Broadway, New York City.† Since Aug., 1910, Supt., in charge of sub-contracts on Potter bldg., etc.

## 1909

**George Fredson Baine, B.S.** Asst. on the Engr. Corps of the Missouri Pac. Ry., Wichita, Kans.; address in care of Div. Eng. Perm. Berlin, Mass.† Reported to be still with the R. R. Co., July, 1911.

**Arthur Bradley Barnes, B.A.** Estimator and Engr. for the Burton H. Wiggin Co., Lowell, Mass. 30 Huntington St., Lowell, Mass. Memb. Boston Soc. of Civ. Engrs.

**Richard Stevens Danforth, B.S.** In field charge of jetty construction for port of Nehalem, Oregon (present address). Perm. 29 Pleasant St., Gardiner, Me. (1910)

**\*\*Richard Hazen, B.A.** Lately with Hazen & Whipple, Consulting Civil Engrs., 103 Park Ave., New York City. Died Aug. 13, 1911. See *Necrology*.

**Ralph Gardner Knight, B.S.** Instructor in civil engineering, Pennsylvania State College, since Oct., 1909. State College, Pa.; perm. Randolph, Mass. Engineering work about the college and grounds, structures and improvements.

**Ernest Avery Lincoln, B.S.** Left the U. S. Geol. Survey in May, 1910. Since with San Diego Consolidated Gas & Elect. Co., on construction of power plant and underground conduit, under H. M. Byllesby & Co., Engrs., Chicago. Res. 1652 First St., San Diego, Cal. Perm. 457 June St., Fall River, Mass.†

**Raymond Robb Marsden, B.S.** Instructor in THAYER SCHOOL OF CIVIL ENGINEERING, year 1909-10. With H. S. Ferguson (T. S. C. E., 1891), Civil and Hydraulic Engr., 200 Fifth Ave., New York City. Perm. 26 Dudley Ave., Utica, N. Y.†

**Frederick Herman Munkelt, B.S.** Estimator and Designer, Am. Bridge Co. (Elmira Plant); addr. care of Empire Bridge Co., Elmira Heights, N. Y. Perm. 668 E. 13th St., Brooklyn, N. Y. Jun. Am. Soc. C. E.†

**Earl Thomas Richards, B.S.** With the Benj. F. Smith Construction Co., mill contractors, as Supt. of construction, including reinforced concrete; 22 Mason St., Pawtucket, R. I. Perm. 269 Maple St., Holyoke, Mass.†

**Charles Potter Richardson, B.S.** During intermediate year rose to rank of Asst. Engr., Missouri Pac. R. R. Lately in charge of putting Talbot spirals in main line, and on special investigations out of office of Ch. Eng. of Maint. of Way. Since Jan., 1911, Asst. Engr. Valley Div., Monroe, La. Address: 7th and Poplar Sts., St. Louis; or 57 Silver St., Dover, N. H.†

**Harold Ordway Rugg, B.S.** Sept., 1909, to June, 1911, instructor, dept. of civil engineering, James Millikin Univ., Decatur, Ill. Instructor general engineering drawing, Univ. of Illinois, Engineering bldg., Urbana, Ill. Perm. 142 Day St., Fitchburg, Mass. Memb. Soc. Prom. Eng. Educ., and Ill. Soc. Eng. and Surveyors.

**Sidney Lee Ruggles, B.A.** Junior Topographer U. S. Geol. Surv., 1909. Instructor in Surveying Pennsylvania State College, 1909-10. Instructor in Surveying and Graphics, THAYER SCHOOL OF CIV. ENG., Sept., 1910, to date. Res. 6 Sargent St., Hanover, N. H.†

**Park Washburn Stickney, B.S.** Lately Asst. Eng., Lake Superior Div., North. Pac. Ry. Since June, 1911, Asst. Supervisor of bridges and bldgs., Union Depot, Duluth, Minn. Res. 901 N. 1st St., Fargo, North Dakota.†

**James Hammond Stone, B.S.** Three intermediate years engineer on railroad work in Pa., and development of iron mines in Cuba. Oct., 1910, to May, 1911, office engr. and since then engr. in charge of construction "Carretera del Oeste," a 30 ft. macadam road, for which he finished plans, estimate and contract. Address: care of H. F. D. Burke, Director General, Obras Publicas, Santo Domingo, W. I. Perm. R. F. D. 2, Concord, N. H. Jun. Am. Soc. C. E.†

**Philip Laforrest Thompson, B.S.** Supt. in charge of construction, etc., Hastings Pavement Co., 25 Broad St., New York City. Res. at 21 W. 129th St. Perm. St. Johnsbury, Vt.† (1909)

**Frederick Sampson Weston, B.S.** During three intermediate years Asst. Engr. for J. G. White & Co., of New York, on construction of Philippine railroads and bridges, on Negros and Cebu. After graduation Res. Eng. on Bangor & Aroostook Ry., Me. Since Mar., 1910, Asst. Engr. and Terminal Engr. Madeira-Mamore Ry., Porto Velho de Santo Antonio, Brazil. May to Sept., 1911, home on vacation. Perm. Middleboro, Mass. Assoc. Memb. Am. Soc. C. E.†

**Willard Choate Winkley, B.S.** Draftsman, Lockwood, Green & Co., Architectural Engrs., 93 Federal St., Boston, Mass. Res. 12 Jefferson St., Winthrop, Mass.† (1910)

*Frederick Kent English, B.S.* Home address: 51 Main St., Wareham, Mass. Asst. in eng. dept. Bost. & Albany R. R., construction of piers, grain elevator, heating and water system at E. Boston. Res. 290 Columbus Ave., Boston, Mass. (1910)

*Ralph William Hazen, B.S.* Since Aug., 1908, Asst. Engr. in the Philippine Service, Manila, P. I. On six months' leave of absence, Sept., 1910, to March, 1911. Since March 1, surveyman on U. S. Recl. Service, Powell, Wyo. Perm. Whitefield, N. H.† Jun. A. S. C. E.

*Roger Frank Hill, B.S.* Graduated from Mass. Inst. Tech., 1910. Since July 1, with the Wire and Cable Co., Montreal, P. Q. Res. 56 Columbia St. Memb. Mech. Eng. Soc. M. I. T., affiliated with Am. Soc. M. E. Perm. Tilton, N. H. (1910)

*Charles Arthur Luck.* General Manager of the Asphalt Block Pavement Co., 845 Ohio Bldg., Toledo, Ohio. Res. 25 Scottwood Apts. Memb. Toledo Society of Engrs. and Ohio Engineering Soc.†

*Harold Arthur Morey, B.S.* During 1909, and before, Asst. to Supt. of Bldgs., Dartmouth College. Since 1910, Asst. in charge of local field and office work for Lloyd & Mann, Concord, N. H., 2½ N. Main St. Perm. Wilder, Vt. (1910)

*Walter Clarence Rich, B.S.* During 1908 and 1909 on Barge Canal, Dept. of State Engr. of New York; on canal construction, to Aug., 1910; after Sept., 1910, Asst. Engr. in charge of construction of highways. 910 Mutual Life Bldg., Buffalo, N. Y. Memb. Soc. Engrs. of Eastern New York.

*Carl Wilbur Ross, B.A.* Chief draftsman, Engr's. office, Water Dept., City Hall, Portland, Ore.

*Alva Bruce Rutherford, B.S.* Supt. for the Asphalt Block Pavement Co., Toledo, Ohio, 845 Ohio Bldg. Perm. Waddington, N. Y.† Construction of pavements throughout Ohio. (1910)

*Frederick Edw. Schilling, B.S.* Supt. of construction for Turner Construction Co., 312 Prudential Bldg., Buffalo, N. Y., in charge of reinforced concrete bldgs. for the F. N. Burt Paper Box Co. and Wood & Brooks Co. Perm. 68 Glen St., New Britain, Conn.†

#### 1910

**Benjamin Ayer, B.S.** The Monatiquot Rubber Works Co., 179 Cedar St., Braintree, Mass. In charge of production. Perm. 135 School St., Belmont, Mass.†

**Delmont Rockwood Bradley, B.S.** With Geo. F. Hardy, Mill Engr. and Architect, 309 Broadway, New York City. Engr. in charge of construction of pulp mill, Jonquien, P. Q., Canada. Perm. 163 Washington St., Gloucester, Mass.†

**Arthur Leet Buxton, B.S.** With Westinghouse, Church, Kerr & Co., 10 Bridge St., New York City. Perm. 108 Dartmouth St., Springfield, Mass. Asst. on construction of railroad bldgs., Melbourne, Ky.; res. 111 East 32d St., Newport, Ky.† (1910)

**Frank Gordon Cook, B.S.** Since May 1, 1911, instrumentman on construction and maintenance of way, North Pac. Ry., eng. dept., Duluth, Minn. Perm. 110 State St., Concord, N. H.†

**Oliver W. Cushman, B.S.** Asst. to Engr., Westinghouse, Church, Kerr & Co., 10 Bridge St., New York City. Res. 311 Adelphi St., Brooklyn; perm. 495 Manchester St., Manchester, N. H.

**Benjamin Harmon Dudley, B.S.** Since Oct., 1910, instrumentman, N. Y. C. & H. R. R. R. Co. Res. 95 Columbia St., Albany, N. Y.; perm. 51 Park St., Malone, N. Y.†



**Robert Rutledge Gould, B.S.** Draftsman for the Am. Bridge Co. of New York, Brooklyn plant. Res. 527 Tinton Ave., "Bronx," New York City; perm. Portland, Conn.†

**Winthrop Lamson Smith, B.S.** Since June 1, 1911, with N. Y. C. & H. R. R. R., on revaluation survey, Grand Cent. Station, New York City. Res. 250 A, Brooklyn Ave., Brooklyn.

**Harry Abbott Ward, B.S.** Asst. in office of Turner Construction Co., of New York; 312 Prudential Bldg., Buffalo, N. Y.; address, 512 Y. M. C. A. Bldg.; or Box 11. Perm. 25 Arlington St., Lynn, Mass.

*Albert James Wheeldon, B.S.* Diploma withheld until completion of work in hydraulics. In employ of U. S. Steel Corporation, Worcester plant. Reported to be in Alabama on company business.

*Frank Stearns Austin, B.S.* Asst. Supervisor of track Bost. & Albany R. R., Pittsfield, Mass. (Station); perm. 38 Sanderson Ave., Lynn, Mass. (1910)

*John Cleveland Beebe, B.S.* Graduate in Hydraulics, June, 1910, from Univ. of Wisconsin, C.E. degree. With the water resources branch of U. S. Geol. Survey, as Junior Engr. Headquarters at Helena, Mont., 44 Montana Nat'l Bank Bldg. Perm. care S. D. Beebe, Hampden, Mass. Junior Am. Soc. C. E.

*Ralph Byron Clement, B.S.* Lately mill inspector, Atlas Portland Cement Co., Northampton, Pa.; left because of injury from the dust. Sub-master Randolph, Mass., High School, Apr. to June. Contemplates a business enterprise. Perm. 12 George St., Chelsea, Mass.

*Fred Ernest Hanson, B.A.* With Mo. Pac. Ry., May, 1909, to August, 1910; then Asst. Eng. on construction of a 28 mile extension of Bangor & Aroostook Ry. Now with Real Estate Dept., N. Y., N. H. & H. R. R. Co. Res. Lee, Mass.

*John Edw. Hansbury, B.S.* No report since May, 1909, when he was track apprentice on Mo. Pac. Ry.

*Arthur Lowell Herrick, B.S.* Graduate in Hydraulics from Univ. of Wisconsin, with degree of C.E., in June, 1910. In charge of hydraulic experimental laboratory at Columbia University, New York City. Perm. 10 Forest St., Gloucester, Mass.

*Hazen Kimball Hibbard, B.S.* Since Oct. 1, 1909, instrumentman on the Atch., Top. & St. Fe R. R., care Div. Eng., Chanute, Kas. Res. 902 East 3d St., Cherryvale, Kas. (1910)

*Fred Gray Leary (B.A., Colgate Univ.), B.S.* Since April, 1910, in the Water Dept., City Hall, Portland, Ore. In charge of 14 miles of water-main construction from Mt. Hood to the city. Res. 589 East Madison St. Perm. Hamilton, N. Y.

*Leon Craig Marshall, B.S.* Since April, 1910, U. S. Reclamation Service, on the Huntley project, transitman on Canal extension. Hdqrs., Huntley, Montana. Perm. Hanover, N. H. May join the class of 1912.

*Dwight Thornton Reed, 2 Lovell St., Portsmouth, N. H.* No report.

*Harold Cushing Whitmore.* Instrumentman with the Harbor and Land Comm., July to Dec., 1910. Since then instrumentman, etc., on the Farnham dam, New Lenox, Mass., in employ of the Board of Public Works, Pittsfield, Mass. Address, care of Engr's. office. Res. 91 Baker St., Lynn, Mass.

## 1911

**John Anthony Cassidy, B.S.** Designer for the Aberthaw Construction Co., two months. Draftsman, Am. Bridge Co., Brooklyn plant. Res. 931 Gates Ave., Brooklyn, N. Y. Declined, for the present, offered position as instructor in the Catholic Univ. of America, Washington, D. C.†

**John Warren Childs, A.B.** Res. at Henniker, N. H. Intermediate year with the State Engineer, Concord, N. H.

**Harry Burns Dore, B.S.** Surveyman, U. S. Reclamation Service, Sun River project, Fort Shaw, Mont. Letter of Aug. 13 from Augusta, Mont.; locating main canal for the Teton unit. Perm. 53 Richards Ave., Portsmouth, N. H.

**Peter Staub Dow.** Foreman for Hastings Pavement Co. of New York City until Sept. 15. Assistant to Professor Hazen in the dept. of engineering and graphics, Dartmouth College, Hanover, N. H. Perm. 416 Second St., Knoxville, Tenn.

**Whitney Haskins Eastman, B.S.** Asst. Supt. for the Merrill-Ruckgaber Construction Co., 50 Church St., New York City. Perm. Fort Ann, N. Y.†

**Fred Sumner Hanson, Jr., B.S.** Until Aug. 15 Field Asst. for Bureau of Engineering Statistics under Prof. Geo. F. Swain. Perm. 93 Myrtle St., Somerville, Mass.

**Henry Roger Harrison, B.S.** Engineering work, Denver, Colo. Res. 1457 Vine St.

**Edward Wyman Higbee, B.S.** Started in May with the Hastings Pavement Co. in New York. Perm. 4 Rhode Island Ave., Newport, R. I.

**James Warren Ingalls, B.S.** Junior topographer, U. S. Geol. Survey, Montpelier, Idaho. Perm. 76 Baker St., Lynn, Mass.

**Edson Warren Keith, B.S.** In Hanover during the summer. No report. Res. West Wareham, Mass.

**Walter Harrison Krafft.** With the Public Service Comm. on 4th Ave. Subway as Junior Engr., 107 Lefferts Place, Brooklyn, N. Y. Res. 1070 Bergen St.

**Ralph Wilbur Noyes, B.S.** With the Stone & Webster En'g Corporation as inspector, Boston, Mass. Res. 48 Cottage St., Melrose, Mass. Perm. Bethlehem, N. H.†

**Robert Emerson Parker, B.S.** Junior engr. with the Aberthaw Construction Co., 8 Beacon St., Boston, Mass. Perm. 55 Walnut St., Reading, Mass.†

**Earle Howard Pierce, B.S.** In May and June with the Hastings Pavement Co. of New York. Incapacitated by surgical operation and slow recovery. Home, 575 Watertown St., Newtonville, Mass.

**James Marsh Porter, B.S.** Draftsman on design of an electro-chemical plant, Northwestern Metals Co., Helena, Mont. Perm. 149 Hawthorne St., Malden, Mass.

**Maurice Readey, B.S.** Since June 1, with Hazen & Whipple, Cons. Engrs., 103 Park Ave., New York City. Perm. 2288 Elm St., Manchester, N. H.

**Fletcher Rogers, B.S.** Supt. of Construction for the Hastings Pavement Co., 25 Broad St., New York City; executing contracts in Plattsburgh and Johnstown, N. Y., etc. Perm. 383 Linden Ave., Brooklyn, N. Y.†

**Ralph Arthur Sherwin, B.S.** With the Aberthaw Construction Co., 8 Beacon St., Boston, Mass., on erection of reinforced concrete bldgs.—in July at Tonawanda, N. Y. Perm. 16 Summit St., Orange, Mass.

**Edgar Mills Steward, B.S.** Supt. of Construction for the Asphalt Block Pavement Co., 845 Ohio Bldg., Toledo, Ohio. In Detroit, Mich., in August. Perm. 517 East 60th St., Chicago, Ill.

**Harry Artemas Wells, B.S.** With Geo. F. Hardy (Dart. Coll., C. S. D., '88), Hydraulic and Mill Engr. and Architect, 309 Broadway, New York City. Left in August for Newfoundland to make surveys for power development and paper mills. Perm. Apthorp, N. H.

**Abiel Wayland Wood, B.A.** With Hazen & Whipple, Consulting Engrs., 103 Park Ave., New York City. Perm. 9 Shattuck St., Worcester, Mass.

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*Geo. E. Chamberlin, B.S.* Failed to qualify for graduation at close of second year;—in arrears. Reported to be with the Stone & Webster Corporation, 11 Hancock St., Boston, Mass.

*Joseph Matthews Smyth.* Failed to qualify for graduation at close of second year;—in arrears. Since May 12, with the U. S. Reclamation Service at Seville, Mont.

*James Joseph Kerley, B.S.* Instrumentman for H. M. Byllesby & Co., contractors and engrs., Chicago, on the New River power plant near Grayson, Va.; four concrete dams and transmission line. Perm. 115 Ballston Ave., Ballston Spa, N. Y.

*Joseph Ritchie Kinney, B.S.* Supt. of Construction for the Harlem Contracting Co., 2 Rector St., New York City; asphalt block pavements. Perm. 187 Lincoln St., Winthrop, Mass.

*Guy Maxwell Perry, B.S.* Inspector for the Elliot C. Brown Co. of New York City, 27 William St. In July in the New York office, as Asst. to the Secretary. Res. 57 West 129th St. Perm. Littleton, N. H.

*Harold Wesley Robinson, B.S.* Instructor in the Mid-Pacific or Mills Institute, Honolulu, T. H. Perm. R. F. D. 2, Warren, Vt.

*Lewis Hamilton Sisson, B.S.* The year 1910-11 as senior in Dartmouth College. With the Racquette River Paper Co.—duties in connection with the Sulphite plant, large up-to-date mills. Res. 53 Elm St., Potsdam, N. Y.

*Perley Nelson Storer, B.S.* Asst. Engr. on the N. Y., Westchester & Boston R. R., on construction. Res. 149 South 5th Ave., Mt. Vernon, N. Y. Perm. 148 State St., Portsmouth, N. H.

## STUDENTS OF THE YEAR 1911-12

### CLASS OF 1912—POST-GRADUATE YEAR

[Prospective class to resume classwork Sept. 20.

Subject to change after this publication.]

- Ellsworth, Clarence Eugene, B.S. *Wentworth, N. H.*  
Formerly with the class of 1908. During more than three years Asst. Eng. in the Water Resources Branch of the U. S. Geol. Survey in Alaska and Washington, D. C.
- English, Harold Lewis, B.S. *Lisbon, N. H.*  
Formerly with the class of 1909. During intermediate years with Post & McCord, as estimator, and with the Public Service Comm. of the state of New York; both in New York City. Field Asst., T. S. C. E., July, Aug., and Sept.
- Marshall, Leon Craig, B.S. *Hanover, N. H.*  
Formerly of the class of 1910. During intermediate years, with the city engr. of Barre, Vt.; on the A. T. & St. Fe Ry.; and transitman, U. S. Recl. Service, Huntley project.
- Boynton, John Jackson, B.S. *34 School St., Claremont, N. H.*  
Foreman for the Harlem Contracting Co., New York City, April to September.
- Gooding, Willard Merrill, B.S. *74 Spruce St., Portland, Me.*  
Surveyman in service of U. S. Engineer Corps, office in Portland, Me., May to Sept.
- Goodrich, Julian O., B.S. *So. Royalton, Vt.*  
Graduate of 1911, Norwich Univ., Northfield, Vt.
- Hormel, Alfred Albert, B.S. *41 M St., South Boston, Mass.*  
Assistant for the Boston Elev. R. R. Co., on car house and storage yard at Eliot Sq., Cambridge, April to September.
- Kimball, Warren Fuller, B.S. *30 Lee St., Cambridge, Mass.*  
During the summer recess, rodman, N. Y., N. H. & H. R. R. Co., Lee, Mass., and New Milford, Conn.
- Locke, Clyde Earle, B.S. *Orleans, Vt.*  
During the summer recess of twenty weeks with the Turner Construction Co., in the office at Buffalo, N. Y.

- Pease, Harold Warren, B.A.      *297 Grove St., Fall River, Mass.*  
Assistant to the Chief Engineer of the city of Manchester,  
N. H., April to September.
- Whitcomb, Frank Sumner, B.A.      *2 Belmont St., Lowell, Mass.*  
Asst. in the Dept. of Eng. and Graphics, Dartmouth Coll. until  
June 30. Since then Asst. to the City Engr. of Barre, Vt.
- Young, Riley Tilton, B.A.      *Littleton, N. H.*  
Transitman on the State road survey in Northern New Hamp-  
shire.
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## INTERMEDIATE YEAR—NON-RESIDENT GROUP

[Subject to change before the make-up of class of 1912 is  
determined.]

- Beane, Sydney Clifford, B.S.      *175 North St., N. Weymouth, Mass.*  
Took Civil Service examination; on U. S. Geological Survey,  
location not reported.
- Campbell, Harold Andrew, B.S.      *88 High St., St. Albans, Vt.*  
Service under the Isthmian Canal Commission. Address: Res.  
Engr's. office, Balboa, C. Z., Panama.
- Gordon, William Davis, B.S.      *2719 Jackson St., Sioux City, Iowa*  
In mercantile business in his home city.
- Knapp, Kenneth Johnston, B.S.      *198 Lake Ave., Rochester, N. Y.*  
Asst. in City Engineer's Office, Rochester, N. Y.
- Noyes, John Wells, B.S.      *1205 Hinman Ave., Evanston, Ill.*  
In July reported himself as working under Mr. Cooper on the  
big power dam across the Mississippi River at Keokuk, Iowa.  
Res. 405 Morgan St.
- Poole, Edward Smith, B.S.      *48 Manning Boulevard, Albany, N. Y.*  
Under date of July 18 wrote of his intention to follow a busi-  
ness career rather than a profession.

## FIRST-YEAR CLASS (T. S. C. E., 1913)

(The year of this class began July 19. Unless otherwise indicated members of this class are Seniors in Dartmouth College and candidates for the College degree of B.S. in 1912.)

Baker, Harold Tower	<i>Dorchester, Mass</i>	348 Center St.
Baker, Ralph Edmund	<i>Dorchester, Mass</i>	348 Center St.
Brewster, John Densmore	<i>Windsor, Vt.</i>	
Brown Harry Madara	<i>Mount Kisco, N. Y.</i>	
Doe, Nelson Luther	<i>Bradford, Vt.</i>	
Farrington, George Hobart	<i>Kingston, Mass.</i>	
Goodrich, Claude Moulton	<i>St. Johnsbury, Vt.</i>	10 Harrison Ave.
Hitchcock, George	<i>Newton, Mass.</i>	11 Hollis St.
Hobbs, Samuel	<i>Pelham, N. H.</i>	
Horne, Ernest Gladstone	<i>Lawrence, Mass.</i>	7 Sheridan St.
Lewis, Joseph William	<i>Lynn, Mass.</i>	64 Verona St.
Lewis, Roy Everett	<i>Lebanon, N. H.</i>	32 Parkhurst St.
Mitchell, Edmund Irving	<i>Brooklyn, N. Y.</i>	770 Putnam Ave.
Perley, Lew Knowlton	<i>Laconia, N. H.</i>	
Snow, Mark George	<i>Middleboro, Mass.</i>	91 Oak St.
Stevens, Samuel Spaulding	<i>Salem, Mass.</i>	

Three years at the Mass. Inst. of Technology. Three years as rodman and inspector on Bost. & Alb. R. R., and as inspector and Asst. Eng. in erection of new bldgs. and plant for the U. S. Mil. Acad., West Point, N. Y.

Waterbury, Lewis Clement	<i>Oriskany, N. Y.</i>	
Whitney, Ralph Edward,	<i>Kecne, N. H.</i>	154 Washington St.



## STATISTICAL SUMMARY

Graduates of Dartmouth College	-	-	-	-	-	-	301
Graduates of other Colleges	-	-	-	-	-	-	25
Partial College courses	-	-	-	-	-	-	15
No systematic College course	-	-	-	-	-	-	15
Total attendance, forty years, 38 classes	-	-	-	-	-	-	340
Total who attended both years, full course	-	-	-	-	-	-	238
Total who attended one year	-	-	-	-	-	-	102
Percentage who took the graduate course,—six or five years	70%						
Average attendance each year,— $(2 \times 238 + 102) \div 39 =$	nearly	15					
Average membership of each class, assuming equal uniform attendance both years nearly	-	-	-	-	-	-	7½
Number for present session year, not included in averages	-	-	-	-	-	-	33
Deceased	-	-	-	-	-	-	28
Membership in Am. Soc. Civ. Engrs. and Mech. Engrs.	-	-	-	-	-	-	63
Membership in other engineering and kindred societies	-	-	-	-	-	-	73
Membership in Thayer Society of Engineers	-	-	-	-	-	-	144

**LOCATIONS**, past and present, of members of all the classes, including 15 of "1912" and intermediate year who have been in practice:—

	PAST	PRESENT
New England States	190	96
Middle States and Washington, D. C.	160	103
North of Ohio and Missouri rivers	60	27
South of the Ohio and east of the Miss. rivers	28	12
Other States east of the 110th meridian	54	30
States west of the 110th meridian	33	22
Dominion of Canada, Br. Col. to Nova Scotia	12	8
Alaska, Phil. Ids., Japan and Hawaii	12	5
South America	5	2
South Africa	2	0
Cuba, W. I. Ids., Mexico and Cent. Am. (Panama)	17	15
Unknown	-	9
In and within 50 miles of New York City	-	72
In and within 50 miles of Boston	-	45
In and within 50 miles of Chicago	-	12

# OCCURRENCES—SESSION YEAR 1910-1911

## ANNUAL EXAMINATION AND GRADUATION APRIL 25 AND 26, 1911

### THESES AND CANDIDATES

#### FOR THE DEGREE OF CIVIL ENGINEER

1. Investigation of the Ledyard Bridge over the Connecticut River,  
and its Re-inforcement.  
JOHN WARREN CHILDS, B.A. *Henniker, N. H.*  
MAURICE READEY, B.S. *Manchester, N. H.*
2. Study of the Problem of Electrification of Steam Railways.  
FRED SUMNER HANSON, JR. *Somerville, Mass.*
3. Plans and Specifications for Remodeling the Interior of Bis-  
sell Hall for the Thayer School of Civil Engineering.  
JOHN ANTHONY CASSIDY, B.S. *Brooklyn, N. Y.*  
GEORGE EDWARD CHAMBERLIN, B.S. *Manchester, N. H.*  
WHITNEY HASKINS EASTMAN, B.S. *Fort Ann, N. Y.*  
HARRY ARTEMAS WELLS, B.S. *Apthorp, N. H.*
4. Plans for New Laboratories for the Thayer School of Civil En-  
gineering. (Hydraulic, Electrical, Cement and Concrete, etc.)  
JAMES WARREN INGALLS, B.S. *Lynn, Mass.*  
EDSON WARREN KEITH, B.S. *West Wareham, Mass.*  
ABIEL WAYLAND WOOD, A.B. *Worcester, Mass.*
5. Studies for the Design of a Solar-electric Generator.  
HARRY BURNS DORE, B.S. *Portsmouth, N. H.*
6. Experimental Study for Sub-surface Distribution of Septic  
Effluent in Gravel-filled Trenches.  
PETER STAUB DOW, *Knoxville, Tenn.*  
FLETCHER ROGERS, B.S. *Brooklyn, N. Y.*

7. Design of a Fireproof Warehouse.  
HENRY ROGERS HARRISON, B.S. *Denver, Col.*  
WALTER HARRISON KRAFFT *Brooklyn, N. Y.*
8. Design of a Hydro-electric Development on Connecticut River.  
RALPH WILBER NOYES, B.S. *Bethlehem, N. H.*  
EARLE HOWARD PIERCE, B.S. *Newtonville, Mass.*  
JAMES MARSH PORTER, B.S. *Malden, Mass.*
9. Doane's Falls Power Project, Royalston, Mass.  
EDWARD WYMAN HIGBEE, B.S. *Newport, R. I.*  
ROBERT EMERSON PARKER, B.S. *Reading, Mass.*  
RALPH ARTHUR SHERWIN, B.S. *Orange, Mass.*  
EDGAR MILLS STEWARD, B.S. *Chicago, Ill.*

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**PRESENTATION OF DIPLOMAS**, in conformity with the findings of the Board of Overseers and action of the Trustees of Dartmouth College, after the reading and discussion of the theses, was made by President Nichols.

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**GRADUATION DINNER.** There was an informal dinner in College Hall at 6.30 p.m., participated in by the Board of Overseers of the Thayer School and Faculties of the Tuck School of Administration and Finance and the graduating classes of both institutions. President Nichols presided, and appropriate remarks were made by him and by the Director and one other member of each Faculty and by a speaker for each class. The class of 1911, T. S. C. E., presented to the Director a sum of money in gold to be used for the purchase of some article of equipment for the new hydraulic laboratory.

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**EXAMINATION OF THE FIRST-YEAR CLASS.** On the following morning the members of this class appeared before the Board of Overseers and presented their drawings, note books, and computation books. Individual members of the class made brief statements describing the field operations, office work, laboratory tests, and the various studies of the year, and were questioned by the members of the Board.

**VISITS OF ALUMNI.** The following THAYER SCHOOL men have visited the School or called upon the Director during the year from Sept. 1, 1910, to Sept. 1, 1911:

J. P. Snow (1875), as Overseer, in April.

Chas. H. Cheney (1888), Sept. 29, en route from the White Mts.

Chas. L. Carpenter (1889,—on vacation from Cuba,— with two sons, Sept. 19, to renew old associations.

Otis E. Hovey (1889), as Overseer, in April and Nov. 6.

Hiram N. Savage (1890), Feb. 9, to see his friends. Gave a talk to the School on the work and progress of the U. S. Reclamation Service. Also A. B. Clark (1890) at Commencement.

John Walker and Sidney G. Walker (1893), on the occasion of their college class reunion in June.

Hugh B. Tabor (1897), July 11, on vacation from Buenos Aires. Gave a talk to the School on the conditions of the profession and related business in Argentina.

Wm. B. Plumer (1897), met the Director at the time of attendance at his college class reunion.

M. F. Brown (1898), called at the School, Oct. 25.

Andrews, C. R. Chase, Crowell, Cudworth, Hunter, McIntyre, Newhall, Rugg, Stevens, Whitaker, of the class of 1902, and Doane, Sampson, and Remsen, of 1903, were at the reunion of "1901," Dartmouth College, and met the Director.

Harold D. Comstock (1904), on vacation from U. S. Recl. Service called Aug. 11, 1911.

John H. Fellows, of "1905," was at class reunion in June.

Walter E. Hawley called during his vacation in Sept., 1910, and again in August, 1911.

Vicente Molina (1907), on his way to Europe, from Merida, Yucatan, for three months' of travel and observation, visited New York and Boston and made a special trip to Hanover to visit the School and his friends.

Samuel C. Bartlett (1908), returned from Alaska in autumn of 1910; at home until March.

Clarence E. Ellsworth (of 1908), called Nov. 10, 1910, on vacation from service in Alaska.

F. H. Munkelt (1909), called Nov. 3, 1910. He and H. O. Rugg, Ruggles, Thompson, Weston, and Winkley, attended their college class reunion in June.

Ralph W. Hazen (1909), called Jan 9, on vacation from service in the Philippine Ids.

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**THE NEW HOME OF THE THAYER SCHOOL** will probably be so far completed as to be available for class work in October. After the new college gymnasium was sufficiently finished in midwinter for use of the students, Bissell Hall, the old "gym," was gradually vacated, and turned over to the THAYER SCHOOL in March. Little could be done beyond completion of the plans until after the meeting of the Overseers in April. The TRUSTEES of the College had voted a loan of \$15,000 for reconstructing the interior, under direction of the Board of Overseers and Faculty of the THAYER SCHOOL. The Overseers, at their April meeting, authorized the Director to supervise the work, aided by the Faculty. Steel frame, floors of reinforced cinder concrete, and partitions of studs and plaster boards with  $\frac{1}{2}$ " to  $\frac{3}{8}$ " of hard plaster on that are used. Bids for the steel were made by the Am. Bridge Co. and Boston Bridge Works, with a slight difference in favor of the former—and both on very favorable terms. It was much less expensive to do the work with the college force and machinery,—a foreman and local help which has done similar work on several of the new buildings. The School is much indebted to Mr. E. H. Hunter (T. S. C. E., 1902), college superintendent of buildings, for his personal interest and aid from the facilities of his office.

The building will continue to be known as Bissell Hall, owing to the conditions of the former trust.

A room is set apart to be known as *alumni room* or *graduates' room*, where will be space for proper display of photographs (including portraits), blue-prints, specimens, drawings, or other material illustrating the experiences and professional work of any of the members of the classes during the forty years of the history of the School. Suitable contributions for this room are invited. The considerable amount of such material now in hand will here find proper exhibition.

## SPECIAL MENTION

L. S. Oakes (1900), writes that, with a party of nineteen members and men of the firm, he sailed in February from New York, stopped at Jamaica and then spent eight days on a visit over the works of the Panama Canal. Thence through Cuba by rail, and home via Florida. In four days spent in Havana he met Macnicol (T. S., 1882), and his classmate, Nolan, who was busy on a four million dollar job for the Havana Central R. R. In New York he called on classmates Wardle, Whittier, and Remsen, and in Hartford on Greenwood. On return to the West he called on Perkins (T. S., 1903), who is "way up in the Northern Pacific Engineering Dept."

Mr. C. C. Carpenter of Andover, Mass., wrote in August that he visited Chas. L. (T. S., 1889), in Cuba last March and "was much interested in the strenuous and important work he is doing there, in the way of building and enlarging this rail line (Guanatanamo and Western) in Eastern Cuba, where immense sugar fields depend on his success in keeping up and extending the facilities and equipment of his railway." A well-known business man from New York, interested in financing the road said: "that he did not believe another man in the country could have succeeded so well as he in rebuilding the road and pushing its work there."

H. L. Muchemore (1906), wrote in July from Bremerton, Wash., where he is building a pier of novel design for the U. S. Naval Station. A nine-inch reinforced concrete slab rests on hollow piles of reinforced concrete, 3 ft. in diam. at top, flaring to 6 ft. at bottom; the only similar example being at the Olongapo Naval Station, Phil. Ids. Working two shifts he dredges to hard pan and places four piles in sixteen hours, these being 19 to 40 ft. long and weighing  $5\frac{1}{2}$  to 9 tons each.

N. S. Buckbee (1906), wrote concerning an interesting and instructive visit to the cement show in New York, at which he unex-

pectedly met Messer '06, Everett and Porter '07, and Hazen '08,—an impromptu THAYER SCHOOL reunion. Everett is reported to have confessed that he still maintains a private machine shop which is very useful in working out mechanical devices relating to the business of the firm.

E. T. Richards (1909), writes that he is in charge of construction of a mill 1050 ft. long, a power-house and storehouse 600 ft. long, and 40 two-tenement houses.

H. D. Hinman (of class of 1908) and the Director unexpectedly met at White Riv. Junc., Sept. 1, and had an hour's interview between trains. Hinman gave an interesting account of his work and responsibilities as supt. of construction of Pedro Miguel locks, Panama canal, to which he is about to return at the close of his vacation. He spoke with strong feeling of his great personal loss in the death of R. H. Pearson, concerning whom he gave some facts which are stated beyond under *Necrology*.

In this connection the Director ventures to quote a letter received from M. C. Tuttle (Dart. Coll., 1897) of the Aberthaw Construction Co., Boston, written in Feb. from Ancon, C. Z., Panama: "I ran onto Hinman on the Pedro Miguel locks. His chief was sick and Hinman very much in charge. He has made a fine name for himself in the Pacific Division. One of his concrete towers holds the record for a day's output for the canal zone."

Carl B. Worthen (1904) is reported by Prof. C. H. Hitchcock (Emeritus Profr. of Geol., Dart. Coll., resident in Honolulu, but now visiting here) as having a call to go to Oahu, Hawaii, to conduct some large operations for an aqueduct for irrigation, requiring some tunnel work in the mountains.

The Director prepared the text of the Bulletin of the N. H. State Board of Health for January, a pamphlet of 32 pages on "Ways and Means of having Healthy Homes and Summer Resorts," dealing at length with disposal by sewage-tank and subterraneous treatment of the effluent in filter trenches. The method thus set forth in detail for the first time has since been adopted as

standard by the State Board of Health of Virginia. In its essential features it is also recommended in the summer bulletin of the Ohio Board of Health.

Members of many classes who have "inspected" the notable Howe truss bridge spanning the Quechee gorge, will be interested to know that it will soon be a bridge only in history. Although it had recently been reported "safe enough" by expert examiners, the management of the Woodstock Ry. thought it wise to have a modern steel structure. The Am. Bridge Co., through O. E. Hovey (T.S.C.E., 1889) was the successful bidder, having submitted three separate plans,—one being for plain trestle towers and plate girders. The preference was for a graceful steel arch of appropriate design, with span of about 200 feet, the height of rail above stream being about 160 ft.

Mr. O. E. Hovey visited the works of the Panama Canal in April to examine conditions relating to the great emergency gates. The contract for these was awarded to the American Bridge Co., a few weeks later. The three sets for the three series of locks involve very heavy truss work and operating machinery which will cost about  $2\frac{1}{4}$  million dollars.

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The Director again spent several weeks in the vicinity of New York during May and June. F. L. Wheaton of the class of 1886, after affording the fine hospitality of Mrs. Wheaton and himself at the East Orange home, took his guest a second time by automobile along the nearly completed line of the Hopatcong cut-off of the D. L. & W. R. R. ( $28\frac{1}{2}$  miles) which Mr. Wheaton both located and constructed. This remarkably heavy work, costing ten million dollars, a succession of almost "record" cuts and fills and some of the most magnificent reinforced concrete structures in this country, was viewed from many points of vantage.

Mr. George C. Wood (T. S., 1890), Div. Eng. on the Catskill Aqueduct, in and near Peekskill, N. Y., gave the Director an opportunity to inspect the most important sections on his divi-



sion, including a grade tunnel partly lined, full concrete tunnels built in cut and cover, and the "inverted siphons" of nine feet steel pipe eventually cased in concrete.

Mr. Chas. H. Nichols (T. S., 1888), engineer for Trowbridge & Livingstone, Architects, of New York, showed the Director his designs and methods of design for the great steel frame of the Bankers Trust Bldg., Wall and Nassau Sts., New York, 44 stories in all. Mr. Nichols was also concerned with the design and inspection of the Gillender Bldg., which this replaces, and which, after fourteen years of service, showed no essential deterioration of the structural steel. (*Eng. Record*, Aug. 19, 1911, and *Eng. News*, July 14, 1910.)

O. E. Hovey, E. J. Morrison, Geo. F. Hardy (Dart. Coll., '88), A. B. Clark, H. S. Ferguson,—who has recently established a successful consulting practice in New York,—Wm. C. Phelps, E. B. Wardle, and others extended to the Director much appreciated courtesies.

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The following is a part of what appeared in *The Dartmouth Alumni Magazine* for August:

\*       \*       \*       \*       \*

The high standard of admission prescribed by General Thayer with rare foresight and insistence, has not been lowered but rather increased; for candidates from the College now have a complete course of mechanical drawing and descriptive geometry extending through five semesters (half years), and a preliminary course of 100 hours in surveying. Also the facilities for preparation in physics and mathematics were never better, and if applicants are deficient in these branches the fault is usually with themselves, as they sometimes admit. In the humanities,—languages, literature, history, economics, etc.,—the college requirements are more exacting than formerly.

Any changes in the curriculum of the School have been made to keep pace with the latter-day surprising and important advances

in engineering science and practice. New forms of material, new adaptations, new methods, and more powerful and effective mechanical appliances or tools have greatly increased the rapidity and magnitude of various kinds of construction. But, since no more time is available, and since the mathematical and mechanical principles cannot be essentially changed, or be of less importance in fixing correct theory,—the effect on the program has been chiefly in shifting the emphasis from some fundamental subjects to others of now larger relative value:—In general construction, the theory, properties and applications of re-inforced concrete; in hydraulics more systematic laboratory work to elucidate guiding principles; in electro-technics enough theory and laboratory measurements to prepare for the obvious emergencies which will confront the student early in his career; in sanitary science the essential facts of bacteriology and hygiene as applied in purification of water supplies and in sewerage works; in theory of framed structures, the use of “influence lines” as a means of analysis; and in more drill in fundamental mechanics and its applications. As one result of keeping in close touch with the “boys,” not only by correspondence but by visiting them on their “works,” their afterthoughts on the bearing of their student work upon their life-work are always suggestive and encouraging. They are unanimous as to the prime value to them of the drill in “surveying,”—field-work and office-work,—and the instruction in applied mechanics.

No changes in the Board of Instruction are expected for the coming year. It would be difficult to find more devoted teachers than Professors Hazen, Holden, and Austin, who are held in the highest respect and esteem by their classes. The first assistant, Mr. Sidney L. Ruggles, who served so acceptably to all concerned last year, will continue on the Board. Mr. H. L. English, of 1909, who has been away two years as draftsman and estimator, will serve as field assistant during July, August, and September, and will complete his course with the class of 1912.

The entering class of about eighteen, and the class of 1912 expected to report in September about twelve strong, make a total attendance nearly 20 per cent less than that of recent years. Col-

lege instructors explain this by admitting that an increasingly large proportion have failed to come up to the Thayer School standard in mathematics and physics.

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Apparatus and various equipment of an engineering school may be and often is more extensive and expensive than is needed for really effective instruction. But the Thayer School, now as in the past, lacks at some points even the minimum of good tools necessary for the best work. While the interest and substantial aid of the Thayer Society of Engineers, and of one member of the Board of Directors have provided some most necessary equipment for instruction in surveying, hydraulics, and electro-technics, about \$3,000 to \$4,000 could be judiciously expended for suitable equipment and furnishing of the new quarters.

The administration has never made numbers a gauge of success. While the larger building would accommodate a total attendance of fifty to sixty, that would probably be undesirable under existing conditions. The prime need is an increase of the endowment fund to provide sufficient income independent of receipts from students to maintain and retain competent teachers. Indeed, consistent adherence to the policy of the "working minimum," and acceptance of only picked men realizes the ideal of quality before quantity. An addition of \$75,000 to the foundation and \$25,000 more on account of the building and its maintenance would satisfy the most pressing needs at this time. Then with a total attendance not exceeding forty, the past policy and distinctive feature of the School,—close personal contact of student and instructor, and intensive rather than extensive instruction,—could be maintained and the quality of its output command continued recognition.

## NECROLOGY

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**Robert Houghton Pearson, B.S.**, of the class of 1907, Dartmouth College, non-graduate of the class of 1908, THAYER SCHOOL OF CIVIL ENGINEERING, died Jan. 4, 1911, of pneumonia. He was the son of the Secretary of State and Mrs. Edward N. Pearson of Concord, N. H.

He graduated from the college with the degree of B.S., having completed the first year of the THAYER SCHOOL courses during his senior year. Almost immediately afterwards he received appointment under the Panama Canal Comm. as rodman in the department of municipal engineering, serving at Ancon during the first six months. He proved to be capable and ambitious and was made assistant to Caleb M. Saville, on his investigations which determined the location of the Gatun dam. After a year he was promoted and, at his own request, put on construction as foreman in charge of the mixer building at the spillway concrete plant, Gatun. During five months after October 1, 1909, he was in charge of the construction of auxiliary mixing plant No. 2, Gatun locks. After that he was promoted to general foreman in charge of placing the concrete in the construction of the Gatun locks, where, previous to August 15, 1910, he maintained a daily average output of more than 3300 cubic yards for two months. His father writes:—"The latter position involved work at high pressure all the time, and, under the nervous strain which was inevitable for one of his temperament and energy, his health was so impaired that the disease could not be overcome."

Below is the official statement of his service:—

Isthmian Canal Commission,

Culebra, Canal Zone, Oct. 21, 1910.

TO WHOM CONCERNED:

Following is the service record of Mr. Robert H. Pearson with the Isthmian Canal Commission:

Employed July 8, 1907, as rodman at \$83.38 per month.

Promoted to levelman at \$100 per month, December 1, 1908.

Rating changed to foreman, March 1, 1909.

Promoted to \$125 per month, June 1, 1909.

Promoted to general foreman, at \$175 per month, July 20, 1909.

Resignation accepted October 16, 1910.

Conduct and services with the Commission were excellent.

(Signed)

C. A. McILVAINE,

*Chief Clerk*

A classmate who entered the service of the I. C. C. at the same time with him, and who was very intimate during the period of Pearson's life there, in a letter to the family wrote of the brotherly regard and esteem between them, and of his honest and true character. He stated that Pearson's knowledge of details on construction was remarkable and spoken of by others as extraordinary for one so young.

He had gone to Boston and was preparing to go into business when he became ill, and died at the home of his aunt in Medford, at the age of twenty-five years.

(LATER) In the personal interview referred to on a previous page Hinman added that Pearson's record grew better every day. As an instance of his vigilance he stated that it was Pearson's custom to personally inspect the interior of the great steel concrete forms (80 ft. high) one hour before the beginning of putting in concrete, each day, starting at 5.30 a.m. with lanterns, when it was yet dark; and similar inspections after the day's work was done. Also that the engineers of the Pacific Div. tried to have Pearson transferred there, because of his efficiency. He attempted too much for the powers of one man.

R. F.

**Richard Hazen, B.A.**, of the class of 1909.

Intelligence of the sudden decease of Richard Hazen, brought a great shock of sorrow to the Faculty of the THAYER SCHOOL and other friends on the morning of August 14. The following appeared in the *Hanover Gazette* of the same week, the facts being chiefly supplied by the writer:

Richard Hazen, youngest son of Mr. and Mrs. Charles Dana Hazen of Hartford, Vt., died in a hospital in New York, August 13, after a very brief illness with poliomyelitis, or infantile paralysis.

He was a graduate of Dartmouth College in the Class of 1907, and of the THAYER SCHOOL in 1909, having taken the full courses; and on account of his six years' attendance at college as well as his previous membership in the high school, was well-known here. He was a young man of the greatest promise; having shown more than ordinary ability as a student, and a high and estimable character, which won the regard of all who knew him.

The funeral was held at the home of his parents, on Christian street, Tuesday afternoon at three o'clock, and burial was in the cemetery in that neighborhood. Professor Fletcher, Director of the THAYER SCHOOL, and also Professor Holden, attended from here. There was a very considerable attendance of friends of the family, and several of his classmates, some of whom came on from New York.

The class presented a large set piece in green, bearing the numerals "1907" in white immortelles, and as a part of the service one classmate read an appreciative sketch of the young man's life and influence. The bearers were from among the members of the class. There was a profusion of beautiful flowers, and a generous gift of a quantity of these was made after the funeral to patients at the hospital here.

Besides the funeral at the house there was an appropriate committal service, for which a large number of people drove to the cemetery. The services were in charge of C. D. Hazen, Jr., an older brother, whose home is with the parents; and the body was brought from New York by the oldest brother, Allen Hazen, of the engineering firm of Hazen & Whipple, by whom the younger brother was employed.

In extending to the family and friends a testimonial of sorrow and sympathy, the Director and other instructors of the THAYER SCHOOL expressed their high appreciation of Richard's ability and worth. Under a quiet and modest demeanor he displayed sterling good sense, carefulness and thoroughness in his ways of working, steadiness of purpose and interest in his work,—all of which won the confidence and esteem of his teachers. Mr. Allen Hazen states that he had done considerable work on a problem in flood-flows, with some surprising results; and that the Yonkers surveys which he had just completed are remarkably satisfactory in every point. Thus he had already shown himself to be capable of meeting the large opportunities opening before him, and, to human vision, his death seems to be quite untimely. R. F.

The following appeared in *The Landmark* (White River Junction, Vt.) of August 17:

Richard Hazen, youngest son of Charles D. Hazen of Hartford, Vt., died of paralysis at the Yonkers homeopathic hospital on the evening of August 13. He was born in Hartford, July 12, 1887, was graduated from Dartmouth College in 1907, and received the degree of C.E. from the THAYER SCHOOL in 1909. He was a charter member of the Sigma Alpha Epsilon fraternity at Dartmouth, and a junior member of the American Society of Civil Engineers.

For two years he had been in the employ of Hazen & Whipple, consulting civil engineers, New York City. In the larger recent enterprises of the firm, at Toronto, Portland, Me., Hartford, Conn., and Brisbane, Australia, he had done original work which was considered of great promise, and in smaller enterprises had been entrusted with an increasing amount of responsibility. He was an assistant in the Yonkers filter construction work of 1909-10, had charge of the plans for the Vassar College sewers, and had accomplished expeditiously and thoroughly since April the surveys for an additional water supply at Yonkers, completing them on August 11. His blameless life, his engaging personality, his admirable record at Dartmouth, and the place he had already won in his profession, make his early death seem the occasion of an irreparable loss.

# OCCUPATIONS OF THAYER SCHOOL MEN, BOTH IN THE PRESENT AND PAST, SHOWING LARGE AND NOTEWORTHY PARTICIPATION IN THE WORLD'S WORK

This exhibit is not complete. Many of the men have been engaged in two or more pursuits; some are counted more than once; but not to include all the individual services during the entire period of 38 years, nor all of the works on which they have been employed.

## CIVIL ENGINEERS AND SURVEYORS

### BUILDING CONSTRUCTION, INCLUDING REINFORCED CONCRETE, POWER PLANTS, MILL CONSTRUCTION, ETC.

General practice: consulting and contracting engrs., Mill engrs. and experts on power development (1 in Hawaii)	- - - - -	28
Chief and asst. engrs. for contractors; managers	- -	14
Engrs. in charge of construction: including Harvard Stadium, Phelps Pub. Co.'s bldg., Springfield, Mass.; seven great warehouses for Bush Terminal Co., Brooklyn, N. Y.; Viaducts of Fla. E. Coast Ry., etc.	- -	34
Assts., instrumentmen, draftsmen, inspectors, etc.	- -	32
Surveyors and engineers, private practice	- - - -	14
U. S. Geol. Survey: topography and water resources	-	8

### BRIDGES AND OTHER FRAMED STRUCTURES OF IRON AND STEEL

Those concerned in the design, manufacture, or erection, as:

Chief Engineers, Asst. Chief Engineers, Managers or Presidents of Companies; members of firms	- -	10
Sales or Contracting Engineers (one in Argentina, S. A.)	-	4
Consulting and Contracting Engineers; Chief Draftsmen	-	10
Designers, Estimators, and Draftsmen	- - - -	22



Resident Engineers in charge of erection of the following (among others) - - - - -	6
Kentucky and Indiana Bridge over the Ohio River; Fort Madison Bridge over the Mississippi River; Wabash Bridge, Terra Haute, Ind.; Thebes bridge across Missis- sippi River; Poughkeepsie Bridge over Hudson River (reconstruction); Stock Exchange and other Steel Skel- eton buildings, New York; Construction of South Side and West Side Elevated Railways, Chicago; Design and erection of structures for Dreamland Park, Coney Id., New York; Steel Work of Hudson Terminal Bldg., New York.	

Responsibility for much of the work of design of the follow-  
ing structures:

The Sabula swing bridge; Principal bridges erected on  
the Boston & Maine Ry. system during 18 years; One, as  
Asst. Engr. in the office of the late Geo. S. Morison, par-  
ticipated in the design of several large bridges or their  
approaches in the Mississippi Valley,—including the  
Bellefontaine bridge, the Cairo bridge, Memphis bridge  
etc.; One, as Prin. Asst. Engr., designed the steelwork of  
the great power houses for the Manhattan and Interbor-  
ough Rapid Transit systems of New York City.

## RAILROADS AND TRANSPORTATION

Chief Engineer Boston & Maine Ry. system - - -	1
Chief Engineer and General Manager Guantanamo & West. Ry., Cuba - - - - -	1
Div. Engrs. (including 1 eng. maintenance of way of 3,600 miles) - - - - -	4
Res. Eng. and Asst. Engrs. Bridges and Bldgs. dept. - -	6
Locating Engrs. or chiefs of party on original survey - -	5
Engrs. in charge of construction, including contracting engr. On the following works, among others:	16
Radebaugh and Portage tunnels, Penn. Ry.; Bergen tun- nel of the D. L. & W. Ry., Hoboken; New terminal sta-	

tion of D. L. & W. Ry., Hoboken; South Fork Extension of Penn. Ry. to the coal mines; great round house and yards of same at Wall, Pa.; Two-mile section of the Subway, New York City; Cuba Eastern (now Guantanamo & Western) Ry., Cuba; Hopatcong cut-off, D. L. & W. Ry.; Chi., Mil. & St. Paul Ry. through Bitter Root Mts.; Heavy grade revision Cumberland Valley R. R. (Penn. System), including design of reinforced concrete arches up to 100 ft. span; Extensions of Northern Pacific Ry.; Madeira-Mamore Railway, Brazil; Philippine Rys., Negros, Cebu, Panay.

Asst. Engrs., Transitmen, etc., on surveys and construction	-	
Florida East Coast Railway (1); Boston Elevated Railway	- - - - -	27
Rodmen and Draftsmen, Asst. Supervisors of track, etc.	-	12

## STATE AND MUNICIPAL ENGINEERS

State Engineer (N. H.)	- - - - -	1
City Engineers and Surveyors	- - - - -	7
Sanitary Engineer, State of Va.	- - - - -	1
In charge of construction of highways and canals	- -	8
Draftsmen and general assistants	- - - - -	24
Water and forest resources	- - - - -	2
Street pavements, contracting and constructing,—asphalt blocks:		
Managers or chief engrs. and supts.	- - - - -	4
Supts. of construction and foremen (past and present)	-	22

## WATER WORKS. FILTRATION PLANTS

Superintendents (including Supt. Washington, D. C., filtration plant)	- - - - -	3
New York Board of Water Supply Catskill Aqueduct:		
Chief Engineer for Contractor on Ashokan dam	- -	1
Resident Engineer	- - - - -	1
Asst. Engrs. in field or office	- - - - -	4
Supt. of Construction, Los Angeles and Portland (Ore.)		
Aqueducts	- - - - -	2

## OCCUPATIONS

85

Asst. Engrs. Inspectors and Draftsmen	-	-	-	-	-	-	-	-	13
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## BUSINESS. SOME NEARLY RELATED TO ENGINEERING

Manufacturing, including iron works, lumber, paper mills and quarrying. Proprietors, members of firms or agents	-	-	-	-	-	-	-	-	16
Merchants	-	-	-	-	-	-	-	-	4
Farmers and Ranchmen	-	-	-	-	-	-	-	-	5
Managers or Superintendents of power or light Cos., or both	-	-	-	-	-	-	-	-	3
Fire prevention engineering and insurance	-	-	-	-	-	-	-	-	8

## CANALS. RIVER AND HARBOR WORKS. GEODESY.

Constructing Engrs. for contractors,—dry-docks, etc.	-	-	-	-	-	-	-	-	6
Two on breakwaters at Manzanillo, Mexico; two in Cuba									
U. S. Asst. Engrs., 11; Juniors, 6 (past and present)	-	-	-	-	-	-	-	-	17
Contractor or eng., harbor dredging, etc.	-	-	-	-	-	-	-	-	2
U. S. Coast and Geod. Survey									
“Assistant” (Philippines, Alaska, transcontinental triangulation and precise levelling) Aids and deck officers	-	-	-	-	-	-	-	-	9
U. S. Lighthouse Service, Inspector	-	-	-	-	-	-	-	-	1
Surveys for Nicaragua Canal	-	-	-	-	-	-	-	-	4
Panama Canal:									
Res. Engr., 1; Asst. Engr., 2; Instrument Men and Supts. of concrete work, 4	-	-	-	-	-	-	-	-	7
Civ. Engrs., U. S. Navy	-	-	-	-	-	-	-	-	2

## IRRIGATION WORKS DEVELOPMENT

U. S. Reclamation Service:									
Supervisors and Consulting Engineers	-	-	-	-	-	-	-	-	1
Asst. Engrs.	-	-	-	-	-	-	-	-	8
Asst. Engr., in charge of all cement testing	-	-	-	-	-	-	-	-	1
Junior Engineers or “Surveymen”	-	-	-	-	-	-	-	-	7

These have done laborious service under severe conditions on the following projects: Belle Fourche, Shoshone, Salt River (Roosevelt dam), Huntley, Colorado river (Laguna dam), Klamath and Interstate.

Constructing Engineers and Managers (including two in San Domingo, one in Puerto Rico)	-	-	-	-	4
Consulting and Contracting Engrs.	-	-	-	-	5

## MISCELLANEOUS

## Engineering Education:

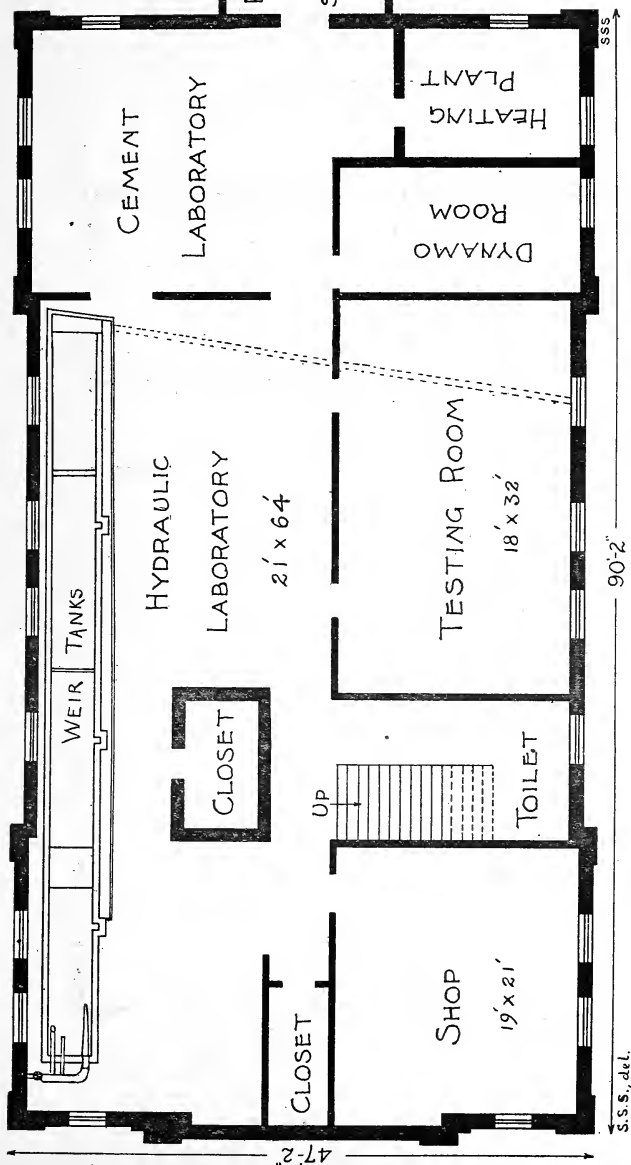
Professors of Civil Engineering and Instructors, of whom eleven are heads of departments, and assistants	-	-			27
Conducting researches in laboratories	-	-	-	-	5
Electrical Engineering	-	-	-	-	2
Mechanical Engineering	-	-	-	-	4
Mining and Metallurgy (two in Mexico)	-	-	-	-	3

## OTHER PROFESSIONS. LITERARY WORK

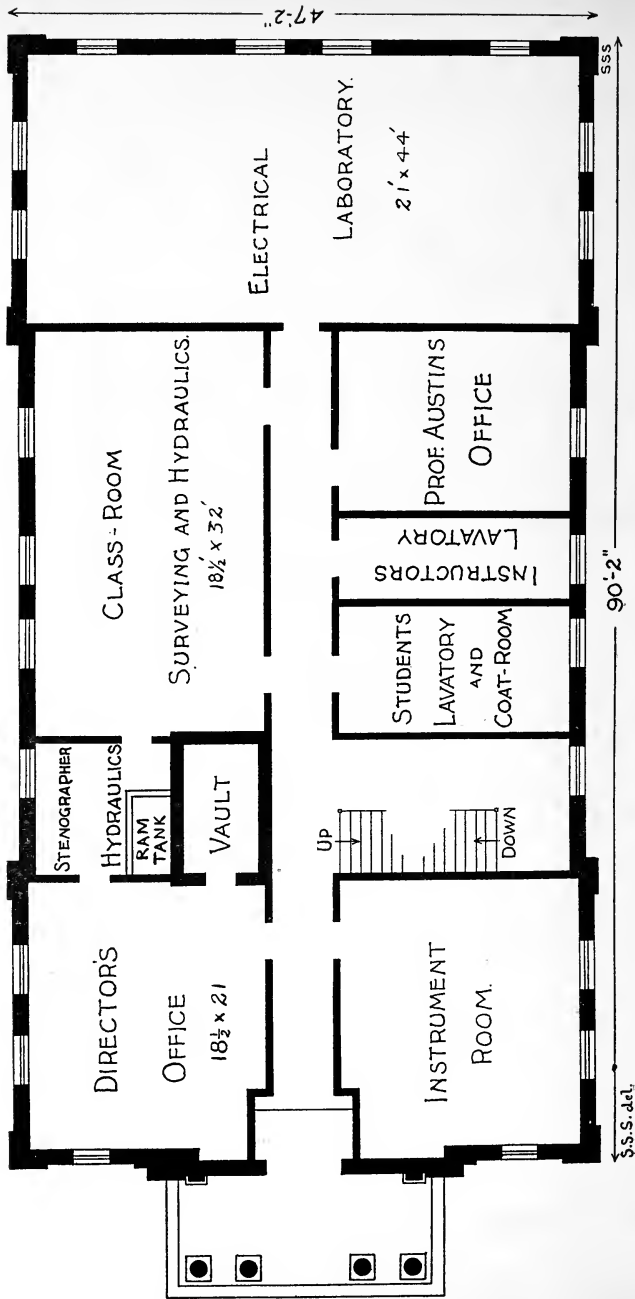
Astronomers (formerly one at Cordoba Observatory, Argentina, and one at Tokio, Japan, and U. S. Naval Observatory)	-	-	-	-	-	2
Meteorologist and Forecaster, U. S. Weather Bureau	-	-				1
Professors of mathematics (Dean of College, 1)	-	-				3
AUTHORS OF PAPERS OR REPORTS contributed to technical societies, journals, etc., or WRITERS OF TREATISES ON ENGINEERING SUBJECTS	-	-	-	-	-	23
Ministry, pastors of churches or mgr. Y. M. C. A.	-	-				3
Teaching.	-	-	-	-	-	2
Inventors: Railroad specialties, 1; hydraulics, 1	-	-	-	-		1
Physician, 1; Lawyer, 1	-	-	-	-	-	2

## FLOOR PLANS OF THE NEW DOMICILE

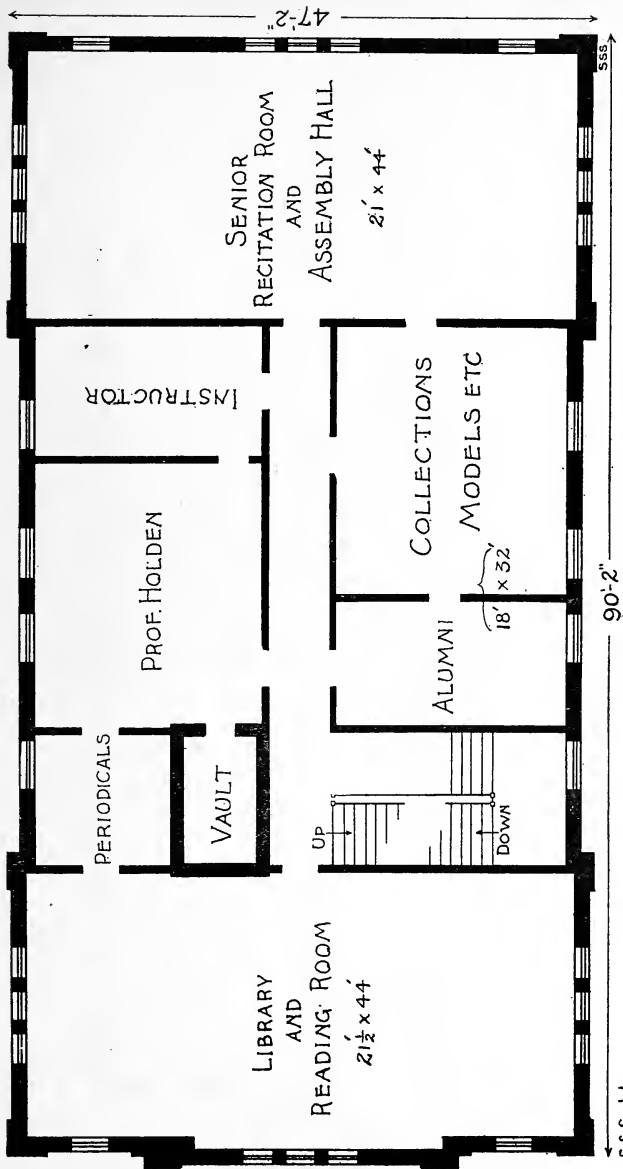
The following pages exhibit the floor plans of the new quarters of the THAYER SCHOOL. The height of the basement story is  $9\frac{1}{2}$  feet; of the second and third stories 11 to 12 feet; of the upper story under the roof, with a skylight of 400 sq. fee, an average of fifteen feet.



BASEMENT PLAN

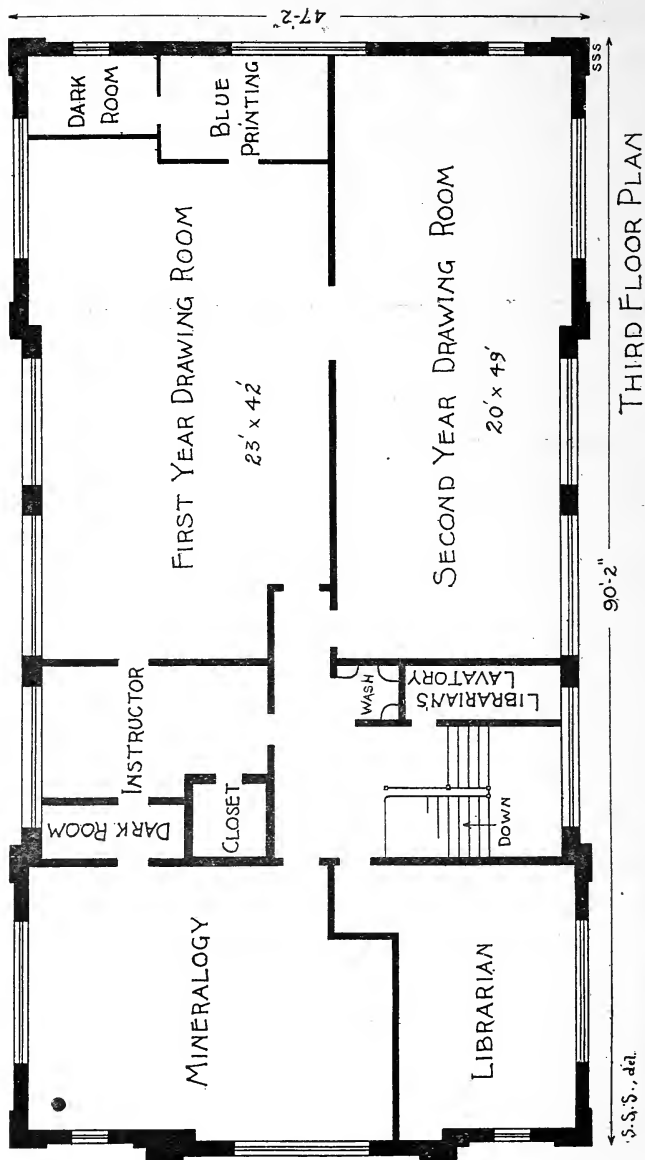


FIRST FLOOR PLAN.



S.S. del.

SECOND FLOOR PLAN.



THIRD FLOOR PLAN



THAYER SOCIETY OF ENGINEERS

OF

DARTMOUTH COLLEGE

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ORGANIZATION—MEMBERS—CONSTITUTION

AND

REPORT OF THE SECRETARY

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GENERAL LIST OF ALUMNI

OF

DARTMOUTH COLLEGE, AND CHANDLER SCIENTIFIC DEPARTMENT  
OF THE COLLEGE, WHO ARE, FOR THE MOST PART  
ENGAGED IN ENGINEERING PURSUITS

# THAYER SOCIETY OF ENGINEERS OF DARTMOUTH COLLEGE

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*President*, GEO. E. MELENDY '85

*Treasurer*, WM. C. PHELPS '95

*Secretary*, GEO. C. STODDARD '81

215 W. 125th Street, New York City

*Executive Committee:*

GEO. C. STODDARD '81

GEO. E. MELENDY '85

OTIS E. HOVEY '89

AMASA B. CLARK '90

WM. C. PHELPS '95

*Advisory Board:*

ROBERT FLETCHER, *ex-officio*

WM. P. SNOW '81	} Term expires January, 1912
JOHN A. MACNICOL '82	
GEO. F. SPARHAWK '91	

WESLEY G. CARR '84	} Term expires January, 1913
PROF. A. W. FRENCH '92	
PROF. C. A. HOLDEN '01	

## STATEMENT OF THE SECRETARY

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The Seventh Annual Meeting of the Thayer Society of Engineers of Dartmouth College, was held at the Dartmouth Club, 12 West 44th St., New York City, on the evening of January 17, 1911.

A general reception was held between the hours of 6.30 and 7.30 p. m., followed by an informal dinner which was attended by some forty-three members and guests of the Society.

It was a great pleasure to the Society to have with us that evening, Dr. Ernest Fox Nichols, President of the College.

Of the faculty of the THAYER SCHOOL, there were present: Prof. Robert Fletcher, its Director, and Professors John Vose Hazen and Charles A. Holden. At the conclusion of the dinner the meeting was called to order by the President, Mr. Allen Hazen, who made appropriate and fitting remarks concerning the Society; he also stated that he could not understand why "he, a rank outsider," was chosen President. He then called upon several to address the Society: among the number were Professors Fletcher, Hazen, and Holden, who spoke of the work accomplished during the year, and of the future outlook and needs of the School. Professor Fletcher brought to the meeting a greeting from President Emeritus Wm. J. Tucker. Mr. Robert L. Read, C. S. D., '64, made brief remarks at this time. Mr. Otis E. Hovey gave an interesting account of the presentation of "Petition A" to the Board of Trustees at their annual meeting in June, and of the interest shown and courtesies extended to him and his colleagues, Mr. J. P. Snow and Mr. E. J. Morrison, by the Trustees. The President then called upon Doctor Nichols, who was received with much enthusiasm and interest, as it was the first time that several of the members had met the new President of the old College. Doctor Nichols

spoke of the many changes that had taken place, and were taking place at Dartmouth; of the act of the Trustees in giving Bissell Hall,—the old gymnasium,—as the future home of the THAYER SCHOOL, and of remodelling it to suit the needs of the School; and of the interest the Faculty and Trustees of the College were taking to place the Engineering Department of the College on a firm foundation.

After the speaking the meeting adjourned upstairs to the Dartmouth Club rooms. The President appointed as tellers to canvass the ballot: Messrs. Geo. P. Wood, Geo. J. McIndoe, and Henry G. Porter.

While the voting was in progress, Mr. Robert L. Read, C. S. D., '64, formerly chief engineer of the Big Four, read some very interesting reminiscences of the Dartmouth of his day, and of his experiences as a young engineer. It is intended that extracts from Mr. Read's paper shall appear in the *Alumni Magazine* during the coming year.

The tellers then reported the canvass of ballots as follows: For five (5) members of the Executive Committee to serve until the next annual election: Mr. Otis E. Hovey '89, Mr. Amasa B. Clark '90, Mr. Geo. E. Melendy '85, Mr. William C. Phelps '95, and Mr. Geo. C. Stoddard '81; and for three (3) members of the Advisory Board to fill the places of those whose terms expired in January, 1911: Mr. Wesley G. Carr '84, Prof. A. W. French '92, and Prof. Chas. A. Holden '01.

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## TREASURER'S REPORT FOR ANNUAL MEETING

FOR FISCAL YEAR ENDING JANUARY 17, 1911

### RECEIPTS

Cash balance in bank, Jan. 20, 1910	\$56.14
Collections from new membership fees	16.00
Collections from annual dues	165.30
Collections from pledges and subscriptions	1,042.20
	<hr/>
	\$1,279.64

## DISBURSEMENTS

Printing, stationery, postage, and exchange	\$33.15	
Expenses, printing and circulating "Petition A"	54.50	
Secretary's expenses on account ANNUAL for 1910	24.22	
Printing and compiling 1910 ANNUAL—Paid		
Treasurer of the College	303.50	
		415.37
Cash in bank January 17, 1911		\$864.27
Check sent to Treasurer of the College in January		850.00
		*\$14.27
Balance		
Audited and found correct January 17, 1911		
E. B. WARDLE,	O. E. HOVEY,	
Auditor	Treasurer	

\*The director reports that at the close of the fiscal year, June 30, 1911, a large part of this contribution of the Thayer Society of Engineers, remained as surplus,—because of the unusually large graduating class. But the Board of Overseers, at their April meeting, in considering the smaller attendance for the year 1911-12, had to discount this surplus in making up their budget for the year. Moreover, the appropriation for refitting Bissell Hall (\$15,000 by the Trustees) will not provide furnishing for the new quarters.

A summary of the report of the Secretary, read at the Annual Meeting, is as follows: The Executive Committee has held six meetings during the year, besides several informal meetings, during the preparation and sending out of "Petition A," which was presented to the Trustees in June, 1910.

Some five hundred copies of the petition were sent out with its accompanying reply card, and it met with a most hearty and interested response from all classes of the alumni.

The Society now numbers five honorary members, and two hundred and fifteen active members; this is an increase of fourteen names from 1910, and of two\* names for 1911. The Secretary records with regret and sorrow the death of Richard Hazen, T. S. '09, who died of infantile paralysis on August 13, 1911.

Respectfully submitted,

GEO. C. STODDARD, *Sec.*

\*August 24, 1911, twelve new names.

## LIST OF MEMBERS

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CHARTER MEMBERS ARE INDICATED BY †

T. S. indicates Thayer School men; more complete information on preceding pages. C. S. D. indicates men of the Chandler Scientific School or Scientific Course of Dartmouth College. D. C. indicates Dartmouth College. N. H. C. indicates New Hampshire College A. and M. A.

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### HONORARY MEMBERS

Ernest F. Nichols, D.Sc.,  
Hanover, N. H.  
Henry L. Abbott, LL.D.,  
23 Berkeley St., Cambridge, Mass.  
Gustav J. Fieberger,  
U. S. Mil. Academy, West Point, N. Y.  
Prof. Robert Fletcher, Ph.D., Mil. Academy 1868,  
Hanover, N. H.  
William J. Tucker, D.D., LL.D., D. C. '61,  
Hanover, N. H.

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Herman E. Abbott, T. S. '93,  
Passaic Water Co., Paterson, N. J.  
Arthur A. Adams, T. S. '95,  
78 Westminster St., Springfield, Mass.  
Henry W. Allen, C. S. D. '80,  
20 Market St., Manchester, N. H.  
J. G. Andrews, T. S. '02,  
284 Franklin St., Newton, Mass.  
†John W. Ash, T. S. of '01,  
Austell, Ga.  
†James L. Averill, T. S. '98,  
Hamilton & Chambers, 29 Broadway, New York City.

- Benjamin Ayer, T. S. '10,  
Monatiquot Rubber Works, So. Braintree, Mass.
- G. F. Baine, T. S. '09,  
3 Nelson St., Clinton, Mass.
- William H. Balch, T. S. '98,  
Santo Domingo City, Dominican Republic.
- †George P. Bard, C. S. D. '89,  
40 Burchard Ave., East Orange, N. J.
- †Percy L. Barker, T. S. '94,  
Jersey Shore, Pa.
- Samuel C. Bartlett, T. S. '08,  
Hastings Pavement Co., 25 Broad St., New York; or Hanover,  
N. H.
- Mart A. Beal, C. S. D. '80,  
Deceased.
- Fred S. Berry, C. S. D. '88,  
Blairstown, N. J.
- †Daniel E. Bradley, T. S. '85,  
Berlin, Conn.
- George F. Brooks, C. S. D. '81,  
Missoula, Mont.
- Maurice F. Brown, T. S. '98,  
47 Winter St., Boston, Mass.
- Ralph H. Brown, T. S. '85,  
Eastern Bridge and Structural Co., Worcester, Mass.
- Owen L. Burdett, T. S. '05,  
48 N. Ashland Ave., Buffalo, N. Y.
- Arthur L. Buxton, T. S. '10,  
Care Westinghouse, Church, Kerr & Co., 10 Bridge St.,  
New York City.
- Herbert Callman, D. C. '04,  
H. Howard & Co., 9 Mott Ave., Far Rockaway, N. Y.
- J. P. Canty, C. S. D. '90,  
B. & M. Ry., Fitchburg, Mass.
- C. L. Carpenter, T. S. '89,  
Andover, Mass., or Guantanamo, Cuba.
- Wesley G. Carr, C. S. D. '84,  
P. O. Box 911, Pittsburg, Pa.
- John A. Cassidy, T. S. '11,  
931 Gates Ave., Brooklyn, N. Y.

- †Edgar R. Cate, T. S. '01,  
Care Westinghouse, Church, Kerr & Co., 10 Bridge St.,  
New York City.
- †Charles F. Chase, D. C. '89,  
New Britain, Conn.
- Edward S. Chase, D. C. '89,  
Penn. R. R., Pier K, Jersey City, N. J.
- Charles H. Cheney, T. S. '88,  
South Manchester, Conn.
- †Amasa B. Clark, T. S. '90,  
225 Fifth Ave., New York City.
- George R. Colson, T. S. '06,  
Babylon, N. Y., So. Shore Traction Co., or N. Billerica, Mass.
- H. D. Comstock, T. S. '04,  
Pathfinder, Wyo.
- Frank G. Cook, T. S. '10,  
N. P. R. R., Gen. Office, St. Paul, Minn.
- Walter A. Conley, T. S. '06,  
67 Spruce St., Portland, Me.
- R. E. Cox, C. S. D. '92,  
Box 1020, Rawlins, Wyo.
- Frederick H. Crafts, D. C. '75,  
97 Glendale Park, Rochester, N. Y.
- †Frank E. Cudworth, T. S. '02,  
With Holbrook, Cabot & Rollins, 331 Madison Ave., New York  
City.
- J. T. Cunningham, C. S. D. '87,  
71 Broadway, New York City.
- †Carroll W. Davis, T. S. '03,  
Harlem Contracting Co., 2 Rector St., New York City.
- †Edwin R. Davis, T. S. '96,  
Florida E. Coast Ry., Marathon, Fla.
- Fred R. Davis, T. S. '95,  
810 Denckla Bldg., Philadelphia, Pa., or Goffstown, N. H.
- Addison L. Day, C. S. D. '70,  
Merchants Laclede Bldg., St. Louis, Mo.
- Royal B. Doane, T. S. '03,  
44 Union Hall St., Jamaica, L. I., N. Y.
- John F. Doonan, T. S. of '05.  
Hotel Miller, Gt. Barrington, Mass., or Greenville, N. H.



- Joseph N. Drew, C. S. D. '82,  
83 Devonshire St., Boston, Mass.
- Arthur W. Dudley, C. S. D. '67,  
936 Elm St., Manchester, N. H.
- Benjamin H. Dudley, T. S. '10,  
79 Columbia St., Albany, N. Y.
- J. H. Dunlap, T. S. '08,  
Hall of Engr., Iowa City, Iowa.
- Whitney H. Eastman, T. S. '11,  
118 Penn Ave., Brooklyn, N. Y.
- Andrew W. Edson, D. C. '78,  
Park Ave. and 59th St., New York City.
- Willard W. Eggleston, C. S. D. '91,  
Botanical Garden, Bronx Park, New York City.
- Arthur J. Ela, T. S. '08,  
506 Terry Ave., or Seattle Engrs. Co., 627 Central Bldg.,  
Seattle, Wash.
- C. E. Ellsworth, D. C. '07,  
Wentworth, N. H., or Hanover, N. H.
- Prof. Charles F. Emerson, D. C. '68,  
Hanover, N. H.
- †Leslie B. Farr, T. S. '03,  
2 Rector St., New York City.
- Hardy S. Ferguson, T. S. '91,  
Consult. Engr., 200 Fifth Ave., New York City.
- Harry W. Fitts, T. S. of '03,  
51 Pembroke St., Newton, Mass., or 110 State St., Boston.
- Thomas Flynn, T. S. of '89,  
511 E. 134th St., New York City.
- †William H. Ford, T. S. '95,  
Phila. & Western Ry., 1024 Arcade Building, Philadelphia, Pa.
- Alvah T. Fowler, T. S. '01,  
117 Center St., Concord, N. H.
- †Arthur W. French, T. S. '92,  
Worcester Polytechnic Inst., Worcester, Mass.
- Charles A. French, C. S. D. '93,  
City Engineer's Office, Laconia, N. H.
- John French, D. C. '86,  
59 Wall St., New York City.
- Eliphalet B. Gage, C. S. D. '58,  
Tombstone, Arizona.

- Jasper M. Gibson, T. S. of '01,  
Mulcahy & Gibson, Contractors, 381 4th Ave., New York City.
- Ray T. Gile, T. S. '79,  
61 Pleasant St., Littleton, N. H.
- C. M. Goddard, C. S. D. '77,  
141 Milk St., Boston, Mass.
- Charles F. Goodrich, T. S. '06,  
Am. Bridge Co., 30 Church St., New York.
- Robert R. Gould, T. S. '10,  
527 Tinton Ave., New York City.
- †Albert H. Greenwood, T. S. '00,  
39 Capen St., Hartford, Conn.
- Arthur W. Hare, T. S. of '03,  
119 Hill St., West New Brighton, Boro' of Richmond, N.Y. City.
- Arthur W. Hardy, T. S. '89,  
240 LaSalle St., Chicago, Ill.
- Edward D. Hardy, T. S. '91,  
Filtration Plant, Washington, D. C.
- George F. Hardy, C. S. D. '88,  
309 Broadway, New York City.
- Fletcher A. Hatch, D. C. of '06,  
Care Josephine M. Hatch, Hanover, Mass. R.F.D. Rockland
- Allen Hazen, N. H. C. '85,  
103 Park Ave., New York City.
- †Prof. John V. Hazen, T. S. '76,  
Hanover, N. H.
- Ralph W. Hazen, D. C. '08,  
3 Bureau of Public Works, Manila, P. I.
- Richard Hazen, T. S. '09,  
Died August 13, 1911.
- William N. Hazen, T. S. '90,  
Am. Concrete Steel Co., Union Bldg., Newark, N. J.
- Charles W. Healey, C. S. D. '81,  
Exeter, N. H.
- Fred C. Heilge, C. S. D. '87,  
Care Westinghouse, Church, Kerr & Co., 10 Bridge St.,  
New York City.
- David M. Hildreth, '87,  
131 12th St., N. E., Washington, D. C.
- Harry C. Hill, T. S. '03,  
Office of State Engineer, Concord, N. H.

- John B. Hodgdon, C. S. D. '85,  
2101 Wall St., Joplin, Mo.
- †Prof. Charles A. Holden, T. S. '01,  
Hanover, N. H.
- †John J. Hopper, T. S. '85.  
215 West 125th St., New York City.
- Schiller Hosford, D. C. '66,  
Care Deere & Co., Moline, Ill.
- C. K. Hosford, T. S. '03,  
North Thetford, Vt.
- †Otis E. Hovey, T. S. '89.  
Care Am. Bridge Co., 30 Church St., New York City.
- Chas. H. Hoyt, T. S. '01,  
Bureau of Highways, U. S. Dept. Agric., Washington, D. C.
- †George H. Hutchinson, T. S. '84,  
Northwest Fuel Co., St. Paul, Minn.
- Arthur B. Ilsley, T. S. '95,  
Southern Ry., 1300 Penn. Ave., Washington, D. C.
- John Y. Jewett, T. S. '95,  
408 Commonwealth Building, Denver, Colo.
- Edward J. Johnson, T. S. of '97,  
511 Paulsen Bldg., Spokane, Wash.
- Sydney E. Junkins, D. C. '87,  
10 Bridge St., New York City.
- Walter Stewart Kelly, C. S. D. '82,  
4 Marion Terrace, Brookline, Mass.
- B. A. Kimball, D. C. '54,  
Concord, N. H.
- W. R. Kimball, D. C. '07,  
300 N. Kenilworth Ave., Oak Park, Ill.
- T. P. Kinsley, C. S. D. '66,  
New Paltz; New York.
- R. G. Knight, T. S. '09,  
P. O. Box 603, State College, Pa.
- C. H. Larimer, C. S. D. '85,  
53 State St., Boston, Mass.
- †Maurice J. Leahy, T. S. '03,  
Care of George F. Hardy, 309 Broadway, New York City.
- George I. Leland, C. S. D. '84,  
City Hall, Lynn, Mass.

- John H. Letteney, T. S. '96,  
101 Tremont St., Boston, Mass.
- E. A. Lincoln, T. S. '09,  
457 June St., Fall River, Mass.
- A. L. Livermore, D. C. '88,  
30 Broad St., New York City.
- Samuel J. Lord, T. S. '96,  
City Engineer's Office, Manchester, N. H.
- C. A. Luck, D. C. '08,  
845 Ohio Bldg., Toledo, Ohio.
- John W. Mair, T. S. '04,  
100 W. Lincoln Ave., Mt. Vernon, N. Y.
- †John L. Mann, T. S. '98,  
Santo Domingo City, Dominican Republic.
- †William F. Mann, C. S. D. '90,  
1000 Boylston St., Boston, Mass.
- William H. G. Mann, C. S. D. '93,  
95 No. Main St., Penacook, N. H.
- Raymond R. Marsden, T. S. '09  
Care H. S. Ferguson, 200 Fifth Ave., New York City.
- Francis B. Marsh, T. S. '02,  
510 W. 135th St., New York City.
- John J. Marshall, T. S. '85,  
Basin, Wyo.
- George E. Melendy, C. S. D. '85,  
204 Center St., Orange N. J.
- Geo. I. McAllister, C. S. D. '77,  
325 The Kennard, Manchester, N. H.
- Samuel A. McCoy, T. S. '97,  
603 German Life Bldg., St. Paul, Minn.
- †George J. McIndoe, T. S. '96,  
Hastings Pavement Co., 25 Broad St., New York City.
- †John A. McNicol, T. S. '82,  
Care of Snare & Triest, Box 733, Havana, Cuba.
- Joseph F. Moore, D. C. '83,  
311 Nicolet Ave., Minneapolis, Minn.
- †Edwin J. Morrison, T. S. '93,  
Hastings Pavement Co., 25 Broad St., New York City.
- Harrie L. Muchemore, T. S. '06,  
Care C. F. Graff, 603 Crary Building, Seattle, Wash.

- Frederick Herman Munkelt, T. S. '09,  
Care Empire Bridge Co., Elmira, N. Y.
- Frank W. Newhall, T. S. '02.  
Republic, Fayette Co., Pa.
- †Charles H. Nichols, T. S. '88,  
527 Fifth Ave., New York City.
- George H. Nolan, T. S. '00,  
With Snare & Triest Co., Havana, Cuba, Box 733.
- Ralph W. Noyes, T. S. '11,  
With Stone & Webster Corporation, Boston, Mass.
- Luther S. Oakes, T. S. '00,  
801 Globe Bldg., Minneapolis, Minn.
- Robert E. Parker, T. S. '11,  
55 Walnut St., Reading, Mass.
- †Henry M. Paul, T. S. '75,  
U. S. Naval Academy, Annapolis, Md.
- John W. Pearson, C. S. D. '83,  
Room 467, South Station, Boston, Mass.
- Robert H. Pearson, D. C. '07,  
Died January 4, 1911.
- Wesley W. Phelps, C. S. D. '81,  
343 So. Hill St., Los Angeles, Cal.
- †William C. Phelps, T. S. '95,  
Room 1026 A, Rapid Trans. Construc. Co., 165 Broadway,  
New York City.
- R. H. Peck, T. S. '08,  
Palmerton, Penn.
- Harold E. Plumer, T. S. '03.  
With Turner Construction Co., 312 Prudential Bldg., Buffalo,  
N. Y.
- Henry G. Porter, D. C. '06,  
Care Hazen & Whipple, 103 Park Ave., New York City.
- John E. Porter, T. S. '03,  
6 Ashburton Pl., Yonkers, N. Y.
- John F. Pratt, C. S. D. '71,  
U. S. C. and G. Survey, Washington, D. C.
- †William H. Pratt, C. S. '74,  
50 Wabansia Ave., Chicago, Ill.
- William E. Puffer, T. S. '92,  
Guanajuato, Mexico. La Tula Min. Co., 253 Broadway,  
New York.

- Robert L. Read, C. S. D. '64,  
68 Summer St., Malden, Mass.
- T. R. Remsen, T. S. of '03,  
With George F. Hardy, 309 Broadway, New York City.
- C. P. Richardson, T. S. '09,  
Asst. Engr. Mo. Pac. Ry., 7th and Poplar Sts., St. Louis, Mo.
- Frank J. Reynolds, C. S. D '89,  
Care Gen. Elec. Co., 30 Church St., New York City.
- E. T. Richards, T. S. '09,  
22 Mason St., Pawtucket, R. I.
- Harold S. Richmond, T. S. '03,  
979 E. 34th St., Brooklyn, N. Y.
- †Wilfred C. Risley, T. S. '01,  
Box 2, Sydney, Nova Scotia, Canada.
- Fletcher Rogers, T. S. '11,  
Hastings Pavement Co., New York. Res. 383 Linden Ave.,  
Brooklyn.
- H. L. Ropes, T. S. '04,  
139 Winslow St., Watertown, N. Y.
- †Warren F. Rugg, T. S. '02,  
767 Elm St., Peekskill, N. Y.
- Arthur V. Ruggles, D. C. '02,  
Board of Water Supply, 165 Broadway, New York City.
- Edward F. Ruggles, C. S. D. '94,  
Md. Geol. Survey, N. Howard St., Baltimore, Md.
- Sydney Lee Ruggles, T. S. '09,  
Hanover, N. H.
- Verney W. Russell, T. S. '07,  
Shoshone Dam, Cody, Wyo.  
U. S. Reclamation Service.
- Alva B. Rutherford, D. C. '08,  
845 Ohio Bldg., Toledo, Ohio.
- Frank B. Sanborn, T. S. '89,  
Tufts College, Mass.
- †Hiram N. Savage, T. S. '90,  
U. S. Reclamation Service, Helena, Mont., or  
Care of Chief Engr. U. S. Geol. Survey, Washington, D. C.
- Frederick E. Schilling, D. C. '08,  
Turner Construction Co., 11 Braodway, New York City.
- Horace H. Sears, D. C. '00,  
82 2nd St., San Francisco, Cal. Care Lilley-Thurston Co.

- W. T. Shaw, T. S. '06,  
9 Ashburton Pl., Boston, Mass.
- F. E. Shedd, C. S. D. '80,  
93 Federal St., Boston, Mass.
- William M. Silleck, D. C. '07,  
325 E. 31st St., New York City.
- Albert Smith, T. S. '03,  
Purdue Univ., Lafayette, Ind., 1022 Seventh St., West.
- Arthur W. Smith, N. H. C. '95,  
1008 Oakland Ave., Ann Arbor, Mich.
- Lyndon A. Smith, D. C. '80,  
Capitol, St. Paul, Minn.
- L. B. Smith, T. S. '06,  
621 N. St. Clair St., Pittsburg, Pa.
- †Jonathan P. Snow, T. S. '75,  
Boston & Maine R. R., No. Union Station, Boston, Mass.
- William P. Snow, C. S. D. '81,  
93 Federal St., Boston, Mass.
- Ralph S. Soper, T. S. '04,  
Drowned June 16, 1910.
- Chas. R. Spalding, C. S. D. '88,  
215 Dearborn St., Chicago, Ill.
- George F. Sparhawk, T. S. '91,  
American Bridge Co., Ambridge, Penn.
- Parker Spofford, C. S. D. '65,  
Bucksport, Me.
- John F. Springfield, T. S. '86,  
United Wate, Gas & Electric Co., Hutchinson, Kansas.
- George M. Stafford, C. S. D. '81,  
804 Burton Ave., Helena, Mont.
- William E. Stanley, C. S. D. '91,  
31 Milk St., Boston, Mass.
- Fred C. Stanton, T. S. '03,  
Asst. Engr. Atlantic Div. Panama Canal, Cristobal, C. Z.
- Everett M. Stevens, T. S. '02,  
Am. Radiator Co., 129 Federal St., Boston, Mass.
- P. W. Stickney, T. S. '09,  
901 1st St. North, Fargo, N. D.
- †George C. Stoddard, C. S. '81,  
215 West 125th St., New York City.

- Arthur W. Stone, T. S. '96,  
Care of William Bradley & Son, Long Id. City, or  
Hartford, Vt.
- Jas. H. Stone, T. S. '09,  
Care H. F. D. Burke, Director General, Obras Publicos, Santo  
Domingo, W. I.
- Franklin H. Stowell, T. S. '05,  
Chicago, Ill., 1200 Tribune Bldg.
- Chester A. Studwell, T. S. of '03,  
40 Leicester St., Port Chester, N. Y.
- Henry A. Symonds, T. S. '94,  
100 White St., Waverly, Mass.
- Hugh B. Tabor, T. S. '97,  
544 Bartolome Mitre, Buenos Aires, Argentint, S. A.
- P. L. Thompson, T. S. '09,  
Care Hastings Pav. Co., 25 Broad St., New York City.
- Herbert R. Thurston, T. S. '95,  
27 Prospect St., Somersworth, N. H.
- Arthur C. Tozzer, T. S. '03,  
Care Turner Const. Co., 11 Broadway, New York City.
- Chas. H. Treat, C. S. D. '65,  
Deceased.
- Frank H. Trow, T. S. '95,  
Care Arthur Bros. & Winston Co., Browns Station, N. Y.
- Albert L. True, T. S. '02,  
Lancaster, Mass. (Missing since March, 1906.)
- Lucius E. Varney, D. C. '99,  
149 Broadway, New York City.
- Geo. W. Wales, C. S. D. '86,  
Manchester, N. H.
- John Walker, T. S. '03,  
Union Pacific Ry., 522 West 21st St., Cheyenne, Wyo.
- Sidney G. Walker, T. S. '93,  
815 Bannigan Bldg., Providence, R. I.
- Edward B. Wardle, T. S. '00,  
Care of George F. Hardy, 309 Broadway, New York City.
- †Herbert L. Watson, T. S. '00,  
201 Ellsworth Ave., New Haven, Conn.
- F. W. Welch, T. S. '08,  
U. S. Reclamation Service, Seville, Mont., or E. Lempster, N.H.



- †Benjamin F. Welton, T. S. of '95,  
280 Broadway, New York City.
- Fred W. Wentworth, C. S. D. '87,  
Citizens' Trust Bldg., Paterson, N. J.
- Russell A. Wentworth, C. S. D. '79,  
100 Ross St., Batavia, N. Y.
- Fred S. Weston, T. S. '09,  
Madeira-Mamore Ry., Porto Velho, Amazonas, Brazil.
- F. L. Wheaton, T. S. '86,  
Andover, N. J., D. L. & W. R. R., or  
85 So. Arlington Ave. E., Orange, N. J.
- Bertrand T. Wheeler, C. S. D '84,  
Room 440, South Station, Boston, Mass.
- Earl F. Whitaker, T. S. of '02,  
7815 4th Ave., Brooklyn, N. Y.
- Thomas T. Whittier, T. S. '00,  
Care of George F. Hardy, Mill Engineer, 309 Broadway,  
New York City.
- W. C. Winkley, T. S. '09,  
7 W. Concord St., Dover, N. H.
- Morton O. Withey, T. S. '05,  
University of Wisconsin, Madison, Wis.
- †Philip H. Winchester, T. S. '00,  
303 Ten Eyck St., Watertown, N. Y.
- George P. Wood, T. S. '90,  
217 Walnut St., Peekskill, N. Y.
- Carl B. Worthen, T. S. '04,  
Los Angeles Aqueduct, Surrey, Calif.
- Geo. W. Wright, C. S. D. '79,  
7 Elati St., Denver, Colo.

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ADDITIONAL

- William Wallace Patterson, C. S. D., '68,  
Oakland, Cal.
- Ralph A. Sherwin, T. S., 1911,  
16 Summit St., Orange, Mass.

## ORGANIZATION AND RESULTS

The Thayer Society of Engineers of Dartmouth College, having been instituted at a meeting held at the Murray Hill Hotel, New York City, December 15, 1903, is the outcome of several informal assemblies of former students of the THAYER SCHOOL OF CIVIL ENGINEERING and the Chandler School of Science and Arts of Dartmouth College, whose collegiate, social, and professional interests are closely interwoven; and who are still concerned for the welfare and needs of the Engineering Department of the College. Officers and former students of any and all departments of Dartmouth College are eligible to membership. A note to the secretary will suffice to secure proposal, and the procedure thereafter is simple.

The work and place of the Society are becoming better understood, as its years increase. That the advantages and privileges of membership are being appreciated is made manifest by the steady growth from year to year. The purposes of the Society, as set forth in the Constitution, are being realized beyond expectations. It is believed that in the course of a few years, the objects and aims which the Society has set before it will be realized in even larger measure.

The hearty coöperation with and support of the Executive Committee and the Board of Overseers of the School, in urging the needs of the THAYER SCHOOL upon the attention of the Trustees of the College, has resulted in securing a habitat for the School adequate for the next fifty years, and on a site worthy of the history and accomplishment of the Institution.

## CONSTITUTION

### I. NAME AND PURPOSE

1. The name of this voluntary association shall be Thayer Society of Engineers, of Dartmouth College.

2. Its object is to further the interests of the Thayer School of Civil Engineering; to promote social intercourse among its members, and to keep them informed as concerns the work and needs of said school.

### II. MEMBERSHIP

1. There shall be eligible for membership in this Society, (a) former students in the Thayer School of Civil Engineering, (b) graduates of the Chandler Scientific Department of Dartmouth College, who graduated prior to the year 1894, and (c) officers of, or former students in any or all departments of Dartmouth College, not described in (a) or (b), whose eligibility shall have been certified by an affirmative vote of the Executive Committee taken previous to any action on the part of that Committee, under Section 4 of Article II of this Constitution, and affecting the person whose eligibility it is sought to determine under this clause (c).

2. A person may become an honorary member of the Society by a unanimous vote of the Advisory Board and Executive Committee. For the purposes of such a vote, said bodies may act separately or as a unit. Letter ballots may be sent to the Secretary.

3. Members and Honorary Members shall be eligible for election to the Advisory Board. Members only shall be eligible for election to the Executive Committee.

4. The Executive Committee shall vote on the admission of such persons as shall have been proposed by a member or members of the Society. The name of the person proposed, together with that of his proposer, shall be entered in a book kept for that purpose, before the Executive Committee proceeds to vote on the admission of that person.

5. Notice of election may be given either to the person elected

or to his proposer. If the payment of the membership fee is not made within three months of the date of notice of election, the election shall be void.

6. The membership fee shall be one dollar.
7. Annual dues shall be one dollar, payable in advance.
8. Honorary members shall have all the rights and privileges of members which are not inconsistent with Article II of this Constitution.

### III. EXECUTIVE COMMITTEE

1. The conduct of the Society's affairs shall be confided to a committee of five of its members, to be known as the Executive Committee.

2. The Executive Committee shall have power to fill any vacancy in their number until the next Annual Meeting of the Society.

3. The Executive Committee shall have the power to elect, annually, from their number a President, a Secretary, and a Treasurer, of the Society; they shall also have the power to remove and replace the same. Members of the Executive Committee shall hold office until their successors are elected.

4. The Executive Committee shall have power to make rules for their own government. An affirmative vote of a majority of all the members of the Executive Committee shall be necessary to amend the rules made by that committee.

5. The Executive Committee shall have power to admit members by ballot, one adverse ballot excluding. The vote upon the admission of a proposed member may be reconsidered and a second ballot taken at the same meeting at which such vote was taken, upon motion of any member of the committee. If such a vote is to be reconsidered at a later meeting, ten days' notice must be given to each member of the committee.

6. The Executive Committee shall have power to call special meetings of the Society.

### IV. OFFICERS

1. The President shall preside at all meetings of the Society and of the Executive Committee. In his absence, a presiding officer may be elected.

2. The Treasurer shall keep the Society's accounts, receive and disburse moneys, and make a report, annually, to the Society.

3. The Secretary shall keep a record of the meetings of the Society and of the Executive Committee; also a record of the names and addresses of members.

4. The officers shall have such other powers and duties as may be prescribed by the Constitution or by the Executive Committee.

## V. ADVISORY BOARD

1. An Advisory Board of seven members, three of whom shall be elected at each annual meeting, after the first election (at which six shall be elected in classes of three), shall have the power to indicate lines of work or investigation to the Executive Committee, which shall adopt and pursue any definite policy set forth in a written statement signed by not less than five members of the Advisory Board. The Director of the Thayer School of Civil Engineering shall be a member, *ex-officio*, of the Advisory Board.

2. No person shall be at one time a member of the Advisory Board and of the Executive Committee.

3. No member residing in the City of New York or within fifty miles of the same shall be eligible for membership in the Advisory Board.

4. The organization of the Advisory Board shall be wholly within the power of that Board.

## VI. ANNUAL MEETING

1. The Annual Meeting of the Society shall be held in the month of January in the City of New York; the first Annual Meeting shall be held in the month of January, 1905.

2. There shall be mailed to each member, at least ten days before the Annual Meeting, a notice of the meeting, together with copies of all lists of nominations received by the Executive Committee prior to the fifteenth day of December.

3. Any member residing at a distance of more than fifty miles from the City of New York may vote by letter ballot.

4. As soon as the Annual Meeting is organized, the presiding officer shall appoint three Tellers to receive and canvass the vote.

5. The Secretary shall turn over to the Tellers all letter ballots received.

6. A voter of a letter ballot, if present at the Annual Meeting, may withdraw such ballot at any time previous to the commencement of voting, on the part of such members as are present; he may then vote with the members present.

7. The vote for members of the Advisory Board and of the Executive Committee shall be by ballot. On the ballots the names of those persons voted for to become members of the Advisory Board shall be separated from the names of those voted for to become members of the Executive Committee. A ballot may contain names not included in any list of nominations. All names voted by a member shall be on one ballot. A ballot containing names in excess of the number of members to be elected shall be rejected by the Tellers.

8. As soon as the canvass is completed, the Tellers shall report the result of the balloting to the presiding officer, who, thereupon, shall declare the vote.

9. Those persons receiving the five highest numbers of votes cast for members of the Executive Committee shall be declared elected to membership in that Committee. Membership in the Advisory Board shall be determined and declared in a similar manner.

10. In case of a tie vote, the members present, by a majority vote shall choose one of the candidates who by reason of the tie vote failed of election on the first ballot.

11. No voting by proxy shall be permitted.

12. Twenty members shall constitute a quorum at any meeting of the Society. If no quorum be present, the presiding officer shall adjourn the meeting to some other day.

## VII. AMENDMENTS

The Constitution of this Society may be amended at any Annual Meeting or at any Special Meeting called for that purpose, by a two-thirds vote in the affirmative, a quorum being present and voting.

## NAMES AND ADDRESSES OF ALUMNI

MEN OF DARTMOUTH IN PURSUITS MORE OR LESS RELATED TO ENGINEERING,—MANUFACTURE, ADMINISTRATION, RAILROADS, ETC.

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### ARRANGED IN CHRONOLOGICAL ORDER

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CHANDLER SCIENTIFIC DEPARTMENT OF DARTMOUTH COLLEGE. Unless otherwise indicated, all alumni up to and including the year 1870 are graduates of the Chandler Scientific School, as it was then known. After 1870 such graduates are indicated by C. S. D., up to 1894.

C. S., indicates Chandler Scientific Course of the College after 1894.

D. C., Dartmouth College, Academic Course.

N. H. C., New Hampshire College of Agriculture and Mechanic Arts.

N. U., Norwich University.

M. C., Middlebury College.

†Indicates Member of the Thayer Society of Engineers of Dartmouth College.

\*Indicates that reply was made to the circular or the card sent out by the Secretary of the Thayer Society.

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\*†Benjamin A. Kimball '54, B.S., A.M. Manufacturer and Engineer Railroad Manager. Pres. C. & M. R. R. Pres. Mechanics Nat. Bank and other corporations. Memb. Amer. Social Science Assoc. Active member New Hampshire Historical Society. Trustee Dartmouth College. Concord, N. H. Class Secretary and Treasurer.

Orrin F. Brooks '55, B.S. Teacher (retired). 200 Belmont St., Brockton, Mass.

Joseph S. Howe '55. Civil Engineer. Member both branches of Massachusetts Legislature. Town Clerk, Treas., and Collector since 1877. Methuen, Mass.

Simon R. Marston '55, B.S. Civil Engineer (retired). 1st Lieutenant 10th N. H. Vols. Maj. and Addl. Paymr. U. S. A. Brev. Lieut. Col. U. S. Vols. 46 State St., Portsmouth, N. H.

Benjamin S. Church '56, B.S., M.S., C.E. Engineer. 36 W. 12th St., New York City. Deceased.

- John W. Wellington '56, B.S. Retired. 305 S. Third St., Vine-land, N. J.
- Albert Wood '56, B.S., M.D. Physician. Surgeon U. S. A., '62-'65. Pres. Worc. City Hosp. V. Pres. Memorial Hospital. Director and Med. Director State Mutual Life Assur. Co. Memb. National, State, and Dist. Med. Socs. Treas. Worc. In-sane Hos. and Worc. Insane Asylum. Director Worc. Gas Light Co. 71 Pleasant St., Worcester, Mass.
- \*Frank Smith '57. Druggist and Bookseller. Ypsilanti, Mich.
- \*Cyrus S. Wright '57, B.S. President of the firm of N. Gray & Co., Inc., Funeral Directors. 2198 Geary St., San Francisco, Cal.
- \*†Eliphalet B. Gage '58, B.S. Pres. Phoenix Nat. Bank. Director Prescott Nat. Bank, also Santa Fe, Prescott and Phoenix R. R. Life Memb. Am. Inst. M. E., and Am. Geol. Soc. Hermosa Beach, Cal.
- Charles W. Hayes '58, B.S. Farmer. Engineer. Madbury, N. H.
- Lucian O. Livingstone '58, B.S. Manufacturer. 6406 Howe St., Pittsburg, Pa.
- \*Joseph E. Marsh '58, B.S. Real Estate—Robert Marsh & Co. Res. 1201 3d Ave., Los Angeles, Cal.
- John E. Sinclair '58, B.S., A.M., Ph.D. Professor Emeritus Worcester Polytechnic Inst. Retired in 1908 after 39 years service at the Polytech. Inst. and 50 years of continuous teaching. 4 North Ave., Worcester, Mass.
- Lord J. Butler '59, B.S. Planter. Civil Engineer. Port Gibson, Miss.
- Daniel H. Sherman '59, B.S. Civil Engineer (retired). Formerly Assistant and Ch. Engr. on railway and other public works. Later, engaged in construction and management of gas plants in New York City. Permanent address: Center Sandwich, N. H.
- \*George H. Strong '59, B.S. Patent Attorney. 1105 Merchants Ex-change, San Francisco, Cal. Home, 271 Lee St., Oakland.
- Albert S. Bickmore, D.C. '60, A.B., B.Sc., A.M., Ph.D., LL.D. American Museum of Natural History, New York City, Profes-sor emeritus, Dept. of Public Instruction.
- \*Lycortas B. Hall '61, B.S., M.S., M.D. Physician. Specialist in Diseases of the Eye. Memb. Northern Med. Soc., also County and State Med. Socs. 139 N. 15th St., Philadelphia, Pa.
- Edward D. Redington, D. C. '61, A.B., A.M., Major U. S. Volun-teers. Trustee Dart. College two terms. Jury Commissioner of Cook Co., Ill., '97 to '07. Life Ins. 204 Dearborn St., Chicago. Permanent address: 512 Lake St., Evanston, Ill.



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**The Membership of the Class of 1913** has been increased by admission of Harry Edward Sawyer. He was admitted to full standing as a member of the senior class in the College on his record as a student at Doane College, Crete, Neb. He will take the full surveying course with the next class, July to October, 1912.

**Harry A. Wells, 1911**, in a card from Newfoundland, writes that his residence in the near future will be 931 Gates Ave., Brooklyn, N. Y.

**James M. Porter, 1911**, in a letter just received from Helena, Mont., gives an interesting account of his trip out there, and lays special emphasis on the value of his all-round training in the college and Thayer School courses. He has taken up a line of work quite different from what he intended to take,—has already been called upon to design a considerable variety of structures for a metallurgical plant, and is at present acting general manager of the Northwestern Metals Co. Address: The Montana Club, Helena, Mont.

## OBITUARY

**John Wells Noyes, of 1912**, page 65.

The very painful intelligence of the sudden death of this highly esteemed and promising member of the class came just at the beginning of session-year of the College in September. The following notice appeared in *The Dartmouth* of September 21:

John Wells Noyes, son of Dr. Edmund Noyes of Evanston, Ill., was killed last Thursday afternoon while at work on a dam which is being built across the Mississippi River by the Mississippi River Power Co., at Keokuk, Ia. He was directing a gang of Italians who were working on the top of the structure. Stepping back upon a railroad track just as a stone train was approaching, he was knocked down and crushed beneath the wheels. He died on the way to the hospital.

Noyes was to have returned to Thayer School this fall to complete his work for civil engineering. While in college, he was prominent in track athletics, running the mile and two-mile. Last year he was captain of the cross-country team. He was born in Chicago, March 8, 1889, and prepared for college at Central High School, Washington, D. C. He was a member of the Beta Theta Pi fraternity.

## ADDENDA, ETC., SEPTEMBER 22

**Carroll W. Davis, 1903**, page 42. It is reported to the Secretary of the Thayer Society of Engineers that his address is: Corning, Tahoma Co., California.

**F. B. Marsh, of 1902**, advises us that after September 29 his home address will be 65 Pinehurst Ave., New York City.

**Wayne A. Perkins, of 1905**, page 48. Add Montana to the address.

**Clarence E. Ellsworth, of 1908 and 1912**, page 54. Joint author of Reports on the Mineral Resources of Alaska and on the Water supply of the Yukon-Tanana region, 1910. Government Printing Office. Extract from Bulletin No. 480, Mineral Resources of Alaska, 1910. Also wrote previous reports for 1908 and 1909 on water supply investigations in same region.

### Membership in Thayer Society of Engineers

Edward D. Hardy, 1891, should be indicated as a member.

Ralph A. Sherwin, 1911, should be indicated as a member.

Harry A. Wells, 1911, should be indicated as a member.

Wm. H. Ham, 1898, should not be indicated as a member.

**Ralph B. Clement, of 1910**, writes under date of September 10, that he is with the Stone & Webster Engineering Corporation, Boston, Mass.: present address, Care of Pollard Mill Camp, Newport, N. H.

**John C. Beebe, of 1910**, visited the SCHOOL September 21. He reports that he has been transferred to the U. S. Forest Service and, after his vacation which is nearly gone, he will be stationed at Missoula, Mont., as headquarters.

**James W. Ingalls, 1911**, wrote from Montpelier, Idaho, under date of August 27, an interesting letter to the DIRECTOR and the SCHOOL describing the nature and methods of his work on the topographical survey conducted by the U. S. Geological Survey.

**The Class of 1912** will include Beane and Gordon (p. 65).

Aug 15



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# DARTMOUTH COLLEGE BULLETIN

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SEPTEMBER, 1912

New Series

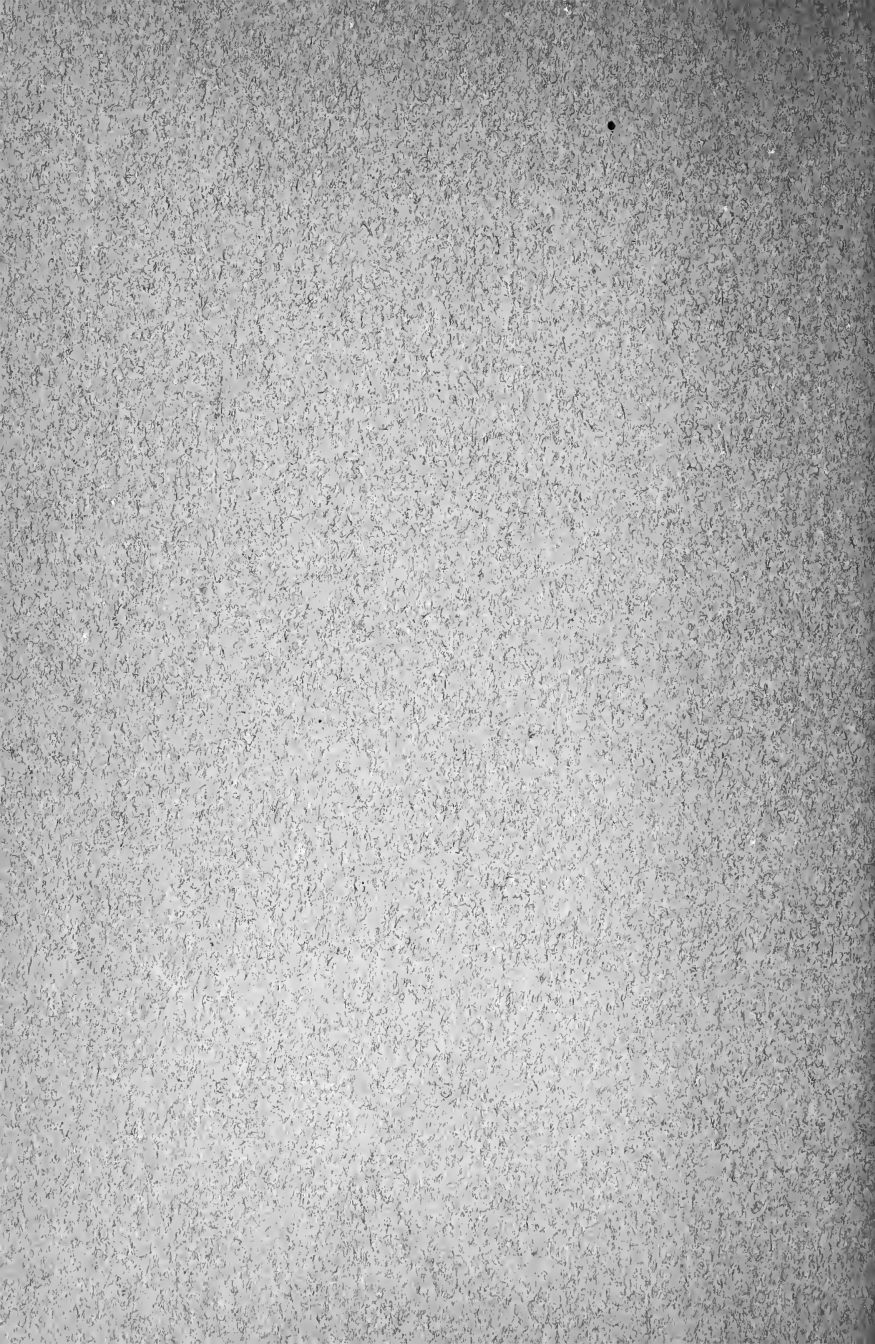
Vol. 1, No. 3

## THE THAYER SCHOOL OF CIVIL ENGINEERING

SEPTEMBER, 1912

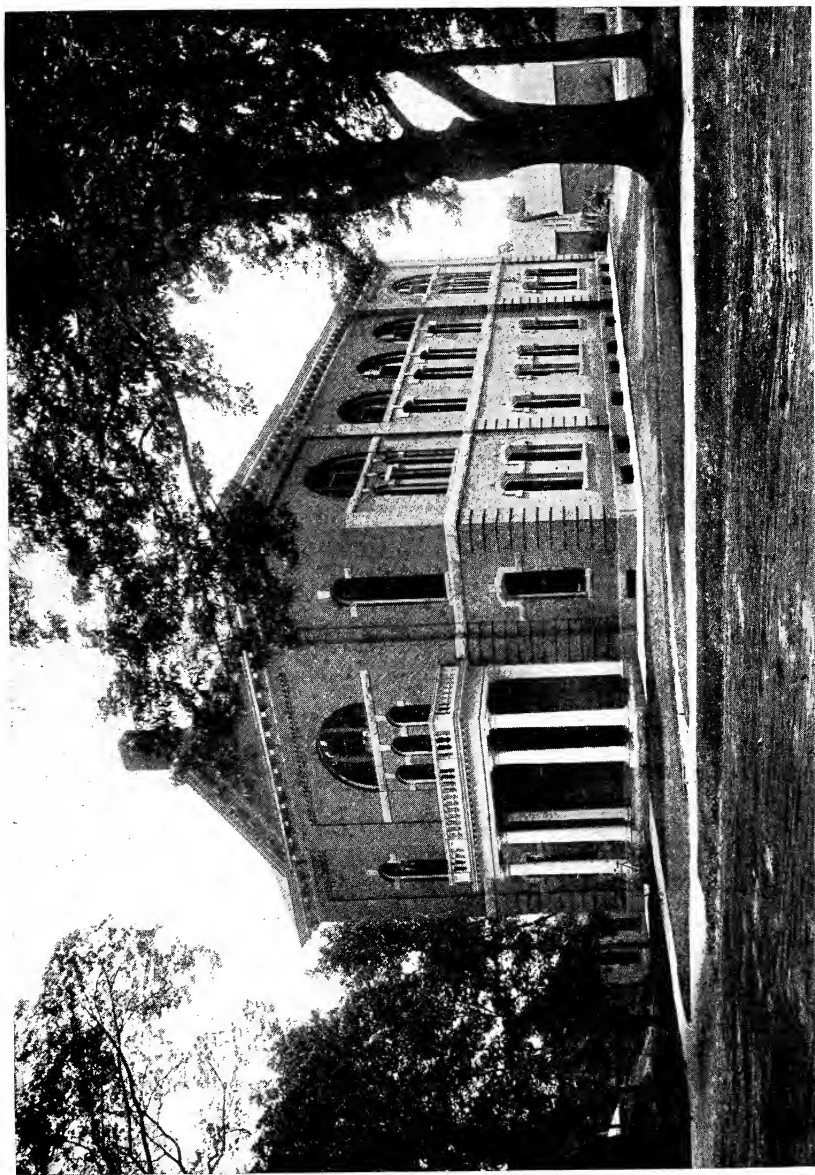
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Thayer School of Civil Engineering  
Founded 1871

# DARTMOUTH COLLEGE BULLETIN

New Series, Volume I, Number 3    Hanover, New Hampshire    September, 1912

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ANNUAL FOR 1912

OF

## THE THAYER SCHOOL OF CIVIL ENGINEERING

---

DARTMOUTH COLLEGE

---

AND OF THE  
THAYER SOCIETY OF ENGINEERS  
OF DARTMOUTH COLLEGE

---

PRESENT ADDRESSES OF GRADUATES AND FORMER STUDENTS  
ALUMNI OF THE CHANDLER SCIENTIFIC SCHOOL AND  
OTHER DEPARTMENTS OF THE COLLEGE; AND  
OTHER PERTINENT INFORMATION

---

PUBLISHED UNDER THE AUSPICES OF THE THAYER  
SOCIETY OF ENGINEERS OF DARTMOUTH COLLEGE

---

SEPTEMBER, 1912

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## CALENDAR

- 1912
- July 16 Year of forty weeks for the first-year class began, Tuesday, 8.15 a. m.
- September 19 Year of thirty-one weeks for second-year class begins, Thursday, 8.15 a. m.
- December 19 Recess of two weeks begins, after the morning recitation, Thursday.
- 1913
- January 2 Class-work resumed at 8.30 a. m., Thursday.
- April 22-23 Meeting of the Board of Overseers, Tuesday. Examination of the classes. Reading of the theses of the classes of 1913. Conferring of the Degree of Civil Engineer.  
*Summer work-period of about twenty-one weeks begins for the first-year class.*
- July 15 Session-year 1913-1914 begins, Tuesday, 8.15 a. m.

---

Class-work is omitted on Thanksgiving day. Usually on a holiday the first morning recitation is held.

## THAYER SCHOOL OF CIVIL ENGINEERING

THE THAYER SCHOOL OF CIVIL ENGINEERING was established in 1871 to provide a *distinctly postgraduate* or professional course of study in Civil Engineering. The fundamental idea was to have all of the preparatory training precede the technical. A "program" of 200 pages, prepared under the direction of the founder, Gen. Sylvanus Thayer, specified in great detail the requisites for admission, including the necessary mathematics, through the calculus, descriptive geometry, chemistry, physics, astronomy and related studies. This was practically what is now termed "the six-year course," depending upon the College or Scientific School for the specified requirements, and some broader training in languages, history, and "the humanities" generally. Consequently, during the first twenty years, 72 per cent of those admitted had already received the degree of A.B. or B.S.

But only a few were able or willing to take so much time; and, when Dr. Wm. J. Tucker assumed the presidency of Dartmouth College in 1893, a readjustment was made between the college courses and those of the associated institutions to accord with the broad policy which the President stated thus:—"It is always and everywhere the function of the College to give liberal education, beyond which and out of which the process of specialization may go in any direction and to any extent. The College must continually adjust itself to make proper connection with every kind of specialized work, not to do it."

The BOARD OF OVERSEERS, which is responsible for the general program of courses of study and practice, then sanctioned the arrangement by which the first year's course in the THAYER SCHOOL could be elected by Seniors in College who had attained to the prescribed standard. This action established the "five-year course" which has been in continuous and successful operation during the past nineteen years, although it has recently been proposed and discussed in some quarters as something of a novelty. The high standard restricted the number of students in the early years, but secured men of broader education, and the change referred to made it possible for men of the right ability to secure both the college degree and the professional, in five years instead of six.

5-11 20/1/15

The administration of the THAYER SCHOOL has offered from the first a general course of study in civil engineering, aiming to include all essential principles and primary operations. Although "mechanical engineering" specifically is not included, the instruction in applied mathematics, mechanics and physics covers the fundamental theory, and there is a sufficient equipment for instruction in practical hydraulics, and a suitable course in electro-technics. Special attention is given to the indispensable *general qualifications* of the *graduate*, to wit: He must be adept in the routine practice of surveying, so as to hold his place under an exacting chief of party; he must be, at the start, an acceptable junior draftsman and an accurate computer; he must have practical knowledge of the ordinary materials of construction, gained by adequate laboratory tests and by trained powers of observation; he must have facility in making accurate and sufficiently complete records in a well-kept notebook; and the habit and method of informing himself as to the progress of engineering science and practice.

In the conduct of the work the conditions of actual practice are realized as much as possible or expedient, to wit: operations out-of-doors during three months continuously; entire days of unbroken work, and each man made responsible for a prescribed accomplishment and the checking of results; each subject is pursued uninterruptedly to a finish, and usually not more than two subjects are under consideration simultaneously. In the field-work an instructor is assigned to each party of five or six students; in classroom and laboratory instructors give personal supervision from three to eight hours daily; the environment offers wide variations of topography and favors unhampered out-door work for all operations of surveying, stream-gauging, etc. The cost of living is less than that in or near large cities.

*The principle of intensive instruction under close personal supervision* has always characterized the THAYER SCHOOL. While the several courses hereinafter described as broadly constituting the science and art of civil engineering present a greatly enlarged program, as compared with that of thirty years ago, the purpose is to restrict the work of instruction chiefly to those controlling principles, data, methods, manual operations, and the "business" of engineering which are fundamental, and which are needful for the usual emergencies of the first year of practice. Justification of this policy is seen in the records of thirty-nine classes,—the present activities of whose members are partly shown beyond,—where

it appears that the graduates have done effective service and filled highly responsible positions in various lines of engineering, in longitude, from Newfoundland and Nova Scotia to the Philippine Islands and Japan, and in latitude from Buenos Aires to British Columbia and Alaska.

Antecedently, graduates of the CHANDLER SCHOOL OF SCIENCE AND ARTS, which graduated its first class in 1854, known before 1894 as the CHANDLER SCIENTIFIC DEPARTMENT OF DARTMOUTH COLLEGE, took a civil engineering course mostly included in their fourth year. The general alumni list at the end of this ANNUAL shows the professional standing of many of these graduates and of some B.A. men of the College who chose similar pursuits.

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DARTMOUTH COLLEGE,—to which the THAYER SCHOOL is related as a graduate department,—is one of the eight oldest colleges of America, established by royal charter in 1769. It has a healthful situation in the Village Precinct of Hanover, N. H., upon a plain 170 feet above the Connecticut river and 550 feet above sea-level. The territory occupied or controlled by the College comprises upwards of one hundred and thirty acres on which are forty-one buildings devoted directly to the uses of the College. Moreover, in case of illness, the Mary Hitchcock Memorial Hospital, constructed upon the most approved plans, and widely known, since its opening in 1893, as one of the best cottage hospitals in the country, furnishes the students such care and comforts as are seldom found outside of the larger cities.

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## THE ANNUAL AND THE THAYER SOCIETY OF ENGINEERS

Previous to 1899 the announcements of the THAYER SCHOOL OF CIVIL ENGINEERING were made in the annual catalogues of DARTMOUTH COLLEGE and by occasional bulletins. To secure the advantage of a separate and earlier publication, giving addresses of graduates and other information not admissible in the catalogue, the ANNUAL was instituted; and soon afterwards its publication was assumed by the THAYER SOCIETY OF ENGINEERS through its Executive Committee. As the Society includes in its membership former members of the CHANDLER SCIENTIFIC DEPARTMENT of the College, as formerly known, it has also endeavored to get into touch with all other graduates of the College who have become identified with engineering or related pursuits. Hence the supplementary list of addresses at the end of this volume which is prepared by the Secretary of the Thayer Society of Engineers.

Since all the correspondence is duly filed, inquiries concerning THAYER SCHOOL men may be answered so far as information has been supplied, subject to confidential restrictions. *Good correspondents who send interesting letters describing works in progress or under observation, with items or comments which, without violating confidence, may be presented to the students for instruction or stimulation, may effectively impress the young men by this sort of "personal contact" with their predecessors.*

Copies of the ANNUALS of previous years will be sent on application to the Director, Prof. Robert Fletcher. These contain biographical sketches of deceased alumni, notices of the technical work of the School, and of T. S. C. E. men, etc.

For further information of the THAYER SOCIETY OF ENGINEERS, apply to the Secretary, Geo. C. Stoddard, Civ. Eng., 215 West 125th St., New York City.



## RAILROAD CONNECTIONS

The railroad station, above half a mile from Hanover Inn, is Norwich and Hanover, on the Passumpsic Division of the Boston and Maine Railroad. At White River Junction, five miles south, five lines of railroads meet, viz.:—the Concord Division of the B. and M.; the Central Vermont and the Connecticut River Division, B. and M. R. R. (eight hours to New York),—connecting at Greenfield and Springfield for the West; the Central Vermont Railroad, North and West (thirty hours to Chicago); the Passumpsic Division, B. and M. R. R. (eight hours to Montreal); and the Woodstock R. R.

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## REQUIREMENTS FOR ADMISSION

Students in DARTMOUTH COLLEGE, in course of preparation for the THAYER SCHOOL, are advised to take the following studies, both to meet the College requirements and to conform to present standards of qualification:

### FRESHMAN YEAR

<i>First Semester</i>		<i>Second Semester</i>
Graphics 1	} Required	{ Graphics 2
English 1		{ English 2
Mathematics		{ Mathematics
Spanish	} Recommended	{ Spanish
French		{ French
German		{ German

### SOPHOMORE YEAR

Graphics 3	} Required	{ Graphics 4
Mathematics		{ Mathematics
Physics 1		{ Physics 2
Physics 3		{ Physics 4
History 1	}	{ History 2

Chemistry 1 and Chemistry 2 for those not presenting Chemistry on entrance.

## JUNIOR YEAR

Physics 5	} Required	Engineering 6
Chemistry 3 or 3a		Chemistry 4 or 4a
Astronomy 3		Astronomy 4
[Astronomy 2 not accepted]		English 10
English 9		Mineralogy 4
Mineralogy 3		
Economics 1, or	} Recommended	Economics 2, or
Political Science 1		Political Science 2

The essential requirements, formerly prescribed with particular details in "Program A," are:—1. Arithmetic; 2. Algebra, *Taylor* or *Bourdon*; 3. Geometry; 4. Trigonometry and Mensuration; 5. Compass Surveying; 6. Descriptive Geometry, including Shades, Shadows, Perspective, and Isometrical Drawing, *Church* or *Wilson*; 7. Analytic Geometry, *Bowser* or *Hardy*; 8. Calculus, *Hardy*; 9. Mechanics, as treated in Physics; 10. Chemistry: as nearly as possible a course equivalent to Chemistry 2, 3, and 4, of DARTMOUTH COLLEGE courses; 11. Physics: as nearly as possible the equivalent of Physics 1, 2, 3, 4, and 5 of the College courses (3 and 4, laboratory practice); 12. Astronomy, *Young's Manual*; 13. Physical Geography and Meteorology.\*

Candidates for admission, whether from DARTMOUTH COLLEGE or other institutions, have to pass an examination which is both oral and written. They should give notice of intention to apply by April 15, or earlier. They must present a certified record of standing and proficiency, and a neat set of *mechanical drawings*—constructions of important geometrical problems and leading problems of Descriptive Geometry. Hence a fair degree of skill in mechanical drawing is one of the essential conditions. The usual examination covers more especially the essential principles of the branches numbered 2, 3, 4, 6, 7, 8, 9, 10, and 11. Prompt

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\*The text books indicated above are recommended, but others fully equivalent may be used.

Students entering the College, with the Engineering course in view, are advised to present for entrance: English, French, two-years Latin, History I or II, Mathematics I, Physics and Chemistry (elementary). In College Mathematics the short courses in Differential Equations and Determinants are desirable because of their applications in the theory of electro-technics, if time permits.

and accurate statement of principles and *definitions* is insisted upon, and a limited amount of blackboard work may be required. In all cases the "standing" or rated proficiency required is at least 75 per cent in the aggregate, in the subjects above specified, and not less than 85 per cent in at least three, nor less than 60 per cent in any one (not less than 75 per cent, however, in Algebra, Trigonometry, and Descriptive Geometry).

Students of approved ability and proficiency in the College may elect the first-year courses in the THAYER SCHOOL for their work of Senior year. At the close of the year, they may formally graduate from the College with the Bachelor's degree. They may become eligible for the degree of Civil Engineer, after pursuing the advanced engineering courses, postgraduate studies of the second-year group.

Hitherto about seventy per cent of those admitted have taken the five-year course. A large proportion have returned to take the postgraduate year after intermissions of one, two, and three years.

Only young men of correct habits and high character will be accepted or retained. Indulgence of an appetite for intoxicating drink will be sufficient reason for rejection of any applicant:—and such indulgence or any other immorality by an accepted member of the institution during his course will be sufficient cause for summary dismissal.

## COURSES OF STUDY AND PRACTICE

### FIRST YEAR

From the middle of July to the last week in April, forty weeks, each week comprising eleven half-days, of four and a half hours, devoted to study, field-work, or office work. In emergencies the half day is extended to five hours or more.

Instruction is given chiefly through daily recitations from textbooks, with comments and explanations by the instructor, and occasional test examinations. In each course one or two principal textbooks are purchased by the students, and others for reference or classroom use are made available by the School. The most recent suitable and standard books are procured. Each student is called upon occasionally to read and report upon an assigned topic, presenting results before the class both from prepared notes and sketches and by oral demonstration.

The amount of field work and practice in laboratory, etc., is made sufficient only for necessary training and to elucidate and emphasize the more important principles.

A.—THEORY AND PRACTICE OF SURVEYING. [This is preceded by a preliminary course of 104 hours during Junior year in College.]

1. INSTRUMENTS:—Engineer's transit, wye-level, dumpy level, prismatic compass and sextant; theory of and perfecting of adjustments; finding magnifying power of telescopes, sensitiveness of spirit levels and compass needles, etc.

2. PRELIMINARY PRACTICE until a required degree of facility is attained, and in which each student shall, by himself or as one of a party, do well a piece of test work of each of the following kinds:—differential levelling; angle measurement in a small scheme of triangulation on a systematic plan of survey for the season; a land survey involving ordinary measurement of lines and angles; measurement of a base-line by steel tape and method adequate to secure precision shown by a probable error not greater than 1 in 400,000; solar observations with engineer's transit for azimuth.

3. GENERAL PRACTICE:—A topographical survey for a contour map, including part of a village or town; a road or line

survey by stadia of several miles, making closed circuits for checks; the routine of an ordinary railroad survey, preliminary curves, frog-angles, and switches; and some practice with the aneroid barometer, prismatic compass and hand-level in reconnaissance. The office work includes the most approved methods of computing, use of planimeter and slide-rule, or more precise calculating machine, mapping and tracing. All the work is planned to yield definite and useful results in shape of maps and profiles of selected districts near by, and to foster an *esprit de corps* and pride in the accomplishment.

4. SPECIAL METHODS AND INSTRUMENTS:—Use of the plane-table, photography in surveying, geodetical surveying, and special practice relating to city and underground surveys, etc., can only be briefly considered in the class-room. Such special practice is beyond the domain of the School, but readily mastered in the future.

*About 154 half-days. Laboratory fee, \$3.00.*

B.—MECHANICS AND APPLICATIONS. Principles of kinematics, statics and kinetics; data and laws of friction, elements of mechanism, important applications in the stability of structures, machine design, operation of hoisting machinery, action of the locomotive engine, etc. *60 half-days.*

C.—MATERIALS OF ENGINEERING. 1. Physical and chemical properties and production of limes, cements, mortars, natural and artificial stone, timber, iron, steel, zinc, copper, aluminum, etc.; durability, preservative materials; a brief course in Mineralogy. 2. Mechanical properties, analytically and experimentally treated. 3. Laboratory test of cements, iron, steel, wood, and other materials. *70 half-days.*

Experimental study of *mechanics of materials* is made by a prescribed series of tests for tension, compression and resistance to flexure, made by each student. Several series of cement tests are conducted each year by groups of two or three, on which reports are required. Occasionally reinforced concrete beams are made and tested.

D.—ORDINARY AND SPECIAL STRUCTURAL WORK AND OPERATIVE DETAILS. *Course begun:*—Elementary courses on stone-cutting (practical problems on the drafting board), masonry and foundations, piers, arches, culverts, and other masonry structures. *36 half-days.*

E.—FRAMED STRUCTURES—TRUSSES FOR ROOFS AND BRIDGES, BUILDING SKELETONS, ETC. *Course begun:*—Graphical statics and other analysis applied to girders and simple trusses. Ordinary and essential details. One or two simple designs. 40 half-days.

G.—ROADS, RAILROADS, AND TRANSPORTATION IN GENERAL. *Course begun:*—Roads, streets and pavements,—construction and maintenance. 20 half-days.

L.—PRINCIPLES OF ELECTRICAL ENGINEERING: (a) *Course in Direct Currents.* (b) *Course in Alternating Currents.*

The methods of the courses aim to impart a concise, practical knowledge of fundamental laws and phenomena, as well as of the best modern types of electrical apparatus, in order to give an understanding of their design, construction and operation.

(a) *Direct Currents:*—

The recitations of this Course deal with magnetic fields, electrical units, electrical energy and applications to primary and storage batteries, telephone and telegraph, generators and motors and electric lighting.

The laboratory exercises of the course are arranged to show the construction and use of the more important measuring instruments and to give practice in testing and conducting original investigations.

*Laboratory fee, \$4.00.*

## SECOND YEAR

Thirty-one weeks, of eleven half-days each, from the middle of September to the last Tuesday in April. During the second year the character and range of subjects call for a wider reading of treatises and current technical literature, which is promoted by full programmes of the courses, and use of indexes. Some of the courses of this year are so interdependent that the time allotments, when stated, are only approximate.

D.—(*concluded*). Framing in wood and metal; advanced reading on masonry and foundations. Theory and practice in relation to retaining walls, dams, chimneys, fireproof and slow-burning construction of buildings; renewals and enlargements; including a *text-book course on the theory and applications of reinforced concrete in these and other cases*. Estimates and costs. Engineering contracts and specifications, and inspection. Auxiliary work and machinery. Tours for inspection of accessible works.

E.—(*concluded*). Analysis of stresses in trusses, framed arches, stone arches, and suspension bridges; details and maintenance. Frames of tall buildings. Tours of inspection. Elementary designing. *About 65 half-days.*

F.—ROCKWORK, TUNNELING, AND MINING. Outlines of Geology,—vacation reading. Explosives and blasting; special appliances and methods in subterraneous works. Reading and lectures.

G.—RAILROADS AND TRANSPORTATION. Economics of location, construction and maintenance of railways. Transportation problems in the United States:—railways and water transportation; railways and recent legislation. A brief study of street railways (electrical and cable traction, etc.), mountain railways, telerphage, and marine transportation. *About 30 half-days.*

Tuck School lectures on history and theory of transportation and on railroad operation and administration may be attended.

H.—HYDRAULIC ENGINEERING: (a) *Recitation Course.* (b) *Laboratory Course in Experimental Hydraulics.*

(a) Theory of the statics and dynamics of fluids; principles and data as affecting works controlling and utilizing water under pressure; laws of flow in channels, pipes, etc.; principles of measurement of small and large volumes; laws governing the operation of water wheels, pumps, meters and hydraulic rams, movable dams and canal locks; applications to development of water-power. Methods and data for the collection, storage purification, and distribution of water for irrigation and municipal consumption.

(b) A series of experiments and prescribed tests for efficiency of nozzles, weirs, siphons, pumps, motors, meters, and rams; the gauging of streams (performed on the Connecticut River); friction in the town mains, fire hose, and fittings. This gives the student good practice in pipe fitting, setting up motors, pumps, meters, etc., and overcoming unexpected difficulties.

*Laboratory fee, \$4.00.*

The Hanover Water Works, a gravity system, having a reservoir of 137,000,000 gallons capacity, a dam 720 feet long and a main and distribution of about nine miles of pipe, affords excellent conditions for hydraulic experiments under a head of 190 feet or less, both at the street hydrants and in a well-equipped hydraulic laboratory.

I.—HEAT, HEAT ENGINES AND POWER. Principles of Thermodynamics; fuels and their combustion; steam. Heat engines; construction and operations of typical forms; application of laws. Development and transmission of power. *About 30 half-days.*

The central heating system of the College, serving thirty-eight buildings, affords opportunity for studying efficiency of boilers and furnaces, at times when regular tests are made. The pulp and paper mills at Wilder, nearby on the Connecticut River, give abundant facilities for studying the operation of a large water-power plant. Arrangements have been made heretofore for conducting tests of waterwheels, gauging flow in flumes, testing fire-pumps, etc., at these works. In the study of development of power, courses H, I, and L are necessarily partly concurrent. (The time available permits only a brief theoretical study of heat engines).

J.—SANITARY ENGINEERING. Drainage and sewerage; systems and appliances; governing principles. Heating and ventilation. Special study of "separate systems" and methods of sewage disposal. Sand filtration of water and sewage. *About 30 half-days.*

The village has three separate systems of sewerage, two built and owned by the College and adapted to a suitable disposal plant hereafter. Successful examples of heating and ventilation may be seen in the new buildings of the College. A model domestic sand filter has been in operation for some years at the THAYER SCHOOL building, and those who take special interest in the problem of the purification of water supply as affected by micro-organisms may arrange for such extra study as time available will allow.

K.—CANALS, IMPROVEMENT OF RIVERS AND HARBORS. Principles; surveys and observations; construction, in different cases—means and methods of procedure. (Briefly by reading; lectures on the Mississippi river levees, harbor jetties, breakwaters, the Panama Canal, etc.).

L.—PRINCIPLES OF APPLIED ELECTRICITY. (b) *Alternating Currents.* This course being a logical continuation of Course (a), is presented in a similar manner, but deals largely with the *engineering* features of applied electricity. The recitations will present the fundamental theories of alternating currents with the aid of calculus, vector analysis and Fournier's Theorem. Particular study will be given to magnetic-induction; transformers; electric power transmutation, transmission, and distribution.



The laboratory exercises are intended to give a firmer grasp of the theory and more adequate conception of "electrical mechanics."

*Laboratory fee, \$3.00.*

THESIS WORK in connection with one or more of the courses, and a week or two of exclusive time.

BUSINESS RELATIONS OF THE ENGINEER. Students of the THAYER SCHOOL may attend lectures given in the Tuck School of Administration and Finance, on appropriate subjects, so far as the schedules will permit.

THE PRINCIPAL TEXTBOOKS used are:—Johnson's "Treatise on Surveying," Webb's "Railroad Construction," Berger's "Manual of Engineer's Instruments," Merriman's "Least Squares," Maurer's "Technical Mechanics," Hancock's "Applied Mechanics," and problems from Sanborn's "Mechanics Problems," and other works. Baker's "Masonry Construction," Johnson's "Materials of Construction," Merriman's "Mechanics of Materials," Carnegie's "Pocket Companion (Steel) and 'Cambria Steel'." French and Ives' "Stone-Cutting," Johnson, Turneaure, and Bryan's "Framed Structures." Baker's "Roads and Pavements." Franklin and Estey's "D. C. Machinery," and Sheldon's "A. C. Machinery." Bell's "Electric Power Transmission." Taylor and Thompson's "Concrete and Reinforced Concrete," Turneaure and Maurer's "Principles of Reinforced Concrete Construction." Tucker's "Contracts in Engineering." Johnson's "Railway Transportation," and reading of Wellington's "Railway Location." Merriman's "Hydraulics," Turneaure and Russell's "Public Water Supplies," and reading of Schuyler's "Dams," Church's "Hydraulic Motors," etc. Folwell's "Sewerage," Hazen's "Clean Water," and reading of recent works on sanitation and sewage disposal. Classroom use of a suitable treatise on "Thermodynamics." Classroom use of Stevenson's "Canal and River Engineering" and Stevenson's "Harbors."

## IN GENERAL

TOURS, for the study and inspection of works in progress or completed are made when expedient. Visits have been made to Boston, Lawrence, Lowell, Worcester, Holyoke, New York, etc.; and have included the construction of the first Brooklyn suspension bridge; steel works; sewage disposal works at Worcester and Clinton; the principal works for water supply and waterpower development in New England; mines, bridge-works, large pumping plants, Massachusetts Experiment Station, etc. There is now so much to be seen of bridges, developments of water supplies, power and electric transmission, mines, etc., at points so near as to be reached by single-day trips, that longer tours are seldom expedient.

SUMMER WORK PERIOD AND INTERMEDIATE YEAR. Opportunities for summer employment have usually been found for the first-year men before or soon after May 1st. In most cases the students are qualified only for subordinate positions as draftsmen, assistants in city engineers' offices; on railway surveys or maintenance, U. S. Government Surveys, etc. The advantages from such practice are often very considerable, but vary with the opportunity offered, and with the character, aptitude, and previous experience of the man. Some find it necessary or desirable to continue in such employment during the entire following year, and some make their way to positions of responsibility; all of these appear in the ANNUAL, and College Catalogue, as the non-resident group for the intermediate year. Some of these return for the fifth year after an absence of one to three years.

TERMS, EXAMINATIONS, ETC. The session-year is divided into two terms by the holiday recess. The summer *work-period* extends from the last week in April to mid-September. The *graduating* THESES are submitted to the BOARD OF OVERSEERS, before whom the candidates for the *Degree of Civil Engineer* present themselves for examination in April; after which the degrees are formally conferred.

Tuition is one hundred and twenty-five dollars per annum, one-half to be paid each term in advance. The graduation fee is ten dollars, and laboratory fees of \$6 to \$8 per year. There is no provision for pecuniary aid. The annual expenses for an

economical student will vary not far from four hundred dollars, including tuition, books, stationery, board, fuel, light, and drawing instruments. Tuition after this year \$140.

Any student who fails to maintain an average of at least 75 per cent during the first year of the THAYER SCHOOL work will not be allowed to enter upon the courses of the second year, nor be entered upon the College Catalogue as a student of an intermediate year.

U. S. CIVIL SERVICE EXAMINATIONS. The U. S. Civil Service Commission has arranged to hold examinations in Hanover, for the convenience of applicants from the student body. The positions for which students of the THAYER SCHOOL OF CIVIL ENGINEERING are eligible are:—Aid, Coast and Geodedic Survey, assistant topographer, draftsman, civil engineer and draftsman, engineering and hydrographic aid, U. S. Geological Survey, surveyman, U. S. Reclamation Service, and junior engineer, U. S. Corps Engineers. The last four are usually possible only for second-year students, candidates for the degree of C.E.

For further information address President ERNEST F. NICHOLS, or Professor ROBERT FLETCHER, Director.

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Since the issue of the previous ANNUAL the THAYER SCHOOL has occupied its new quarters, shown in the frontispiece. The interior, entirely rebuilt with fireproof construction, has about two and one-half times the floor space of the old building (practically four stories) and is adapted throughout to meet present and future requirements.

## BOARD OF OVERSEERS

ERNEST FOX NICHOLS, D.Sc., LL.D., President of Dartmouth College, PRESIDENT.

HENRY LARCOM ABBOT, LL.D., lately Col. U. S. Corps of Engineers; Brig. Gen. U. S. Army, retired. Permanent address, 23 Berkeley St., Cambridge, Mass. Consulting Engineer. Lately member of International Comité Technique de la Compagnie Nouvelle du Canal de Panama and subsequently its Consulting Engineer. Member of the International Board of Consulting Engineers for the Panama Canal. Professor of Hydraulic Eng., George Washington Univ., Washington, D. C.

JONATHAN PARKER SNOW, C.E., Recently Chief Engineer of the Boston and Maine Railroad System. Consulting Civil Engineer, Office 18 Tremont St., Boston, Mass. Residence, 58 Chandler St., W. Somerville.

GUSTAV JOSEPH FIEBEGGER, Col. U. S. Army; Professor of Civil and Military Engineering, U. S. Mil. Academy, West Point, New York.

OTIS ELLIS HOVEY, C.E., Asst. Chief Engineer of the American Bridge Company of New York; Hudson Terminal Bldg., 30 Church St., New York City.

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### TREASURER

CHARLES PARKER CHASE, A.M., Hanover, N. H.

## BOARD OF INSTRUCTION

ERNEST FOX NICHOLS, D.Sc., LL.D., President of the College, PRESIDENT.

ROBERT FLETCHER, PH.D., Civ. Eng.

DIRECTOR and Professor of Civil Engineering:

Mechanics, Hydraulic and Sanitary Engineering, courses on Bridges and Transportation.

JOHN VOSE HAZEN, C.E.

Professor of Civil Engineering on the Chandler Foundation:

Railroad Surveying, Road Construction, and Masonry Structures.

CHARLES ARTHUR HOLDEN, C.E.

Professor of Civil Engineering: In charge of Surveying Courses;

Materials of Construction and Mechanics of Materials; instruction in second year courses.

FRANK EUGENE AUSTIN, B.S.

Professor of Electrical Engineering:

Experimental Hydraulics and Power Transmission.

SIDNEY LEE RUGGLES, C.E.

Instructor in Surveying, Graphics and Laboratory.

RALPH EDWARD WHITNEY, B.S.

Field Assistant in Surveying, July, August, and September.

## NON-RESIDENT INSTRUCTORS AND LECTURERS

### SESSION-YEAR 1911-12

JOHN L. MANN, (T. S. C. E., 1898), while on a vacation visit to the United States, gave two lectures to the THAYER SCHOOL, December 12, 1911, on engineering works and projects in Santo Domingo, and his experiences in the field and in administration. Prof. Mann (Assoc. Prof. of Civ. Eng. in the THAYER SCHOOL, 1898 to 1905) is now Director General of Public Works for the Republic of Santo Domingo.

SIDNEY G. WALKER (T. S. C. E., 1893), Insurance Engineer for the Manufacturers', Rhode Island, Mechanics, and other Fire Insurance Co.s, Providence, R. I., lectured to the SCHOOL, on Fire Protection and Prevention viewed from the standpoints of the economist and civil engineer; describing and exhibiting also some mechanical appliances. March 15, 1912.

FRANK B. SANBORN (T. S. C. E., 1889), Professor of Civil Engineering, Tufts College, lectured to the SCHOOL, March 29th and 30th on "A Sanitary Survey of Lawrence, Mass.," conducted by him during the previous summer. Exhibit of maps and diagrams.

PHILIP W. AYRES, Forester of the Society for the Protection of N. H. Forests, and of the Dartmouth College Grant, gave three lectures to the THAYER SCHOOL and Tuck School jointly, April 1st and 2nd, on "The Drain Upon the Forests," "What Forestry Has Done," and "The Problem of Saving the White Mountain Forests." Numerous lantern views. A field-meet for study of forest conditions in the winter followed the lectures.

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**Non-Resident Lecturers for 1912-13** cannot yet be specifically announced.

COL. F. V. ABBOT, U. S. Corps of Engineers, in charge of the Boston District, is expected to talk to the classes on some appropriate subject drawn from his long experience on various works built under direction of Army Engineers.

## ADDRESSES AND OCCUPATIONS OF ALL MEMBERS OF CLASSES TO DATE

The DEGREE OF CIVIL ENGINEER was conferred in due course upon those whose names appear in black letter, and must be so understood, in addition to the college degrees (conferred by Dartmouth College unless otherwise stated) indicated by the usual title letters.

Names in italics are of those who left at the end of the first year to engage in engineering or other business; also of a few who failed otherwise to qualify for the degree.

\*\*Denotes deceased. Biographical notices of the deceased of previous years may be found in the ANNUAL for 1899 and those following. Literary activities of THAYER SCHOOL men are noted in the ANNUAL for 1904 and some of those preceding.

Membership in the THAYER SOCIETY OF ENGINEERS is indicated by T.S.

That portion of this publication relating to the Thayer Society of Engineers, separated by its appropriate title page, was prepared by GEO. C. STODDARD, the Secretary of that Society; the first part by the DIRECTOR of the THAYER SCHOOL.

*All Thayer School men are particularly requested to inform the Director promptly as to any change in professional or other occupation, and residence.*

ARRANGEMENT AND ABBREVIATIONS:—The business address is given first. Perm. = Permanent Address. Res. = Resides. Eng. = Engineer. Civ. = Civil. Jun. = Junior. Memb. = Member. Assoc. = Associate. Div. = Division. Res. Eng. = Resident Engineer. Pres. = President.

## NAMES AND ADDRESSES BY CLASSES

*The affixed date in parenthesis indicates when the last information was given. If any reader has later information please send it promptly to the Director, and to the Secretary of the Thayer Society of Engineers. Class secretaries are requested to coöperate.*

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### 1873

**\*\*Thomas Stevens Greenlay.** Died at San Antonio, Texas, Sept. 24, 1898. (See Annual for 1899.) Two sons succeeded to his business as manager of railway supply house.

**\*\*Albert Hezekiah Porter, A.M.** Died at Thetford Center, Vt., Dec. 10, 1909; age 65 years. (See Annual for 1910.)

**\*\*Henry Allen Hazen, A.M.** Died at Washington, D. C., Jan. 24, 1900. (See Annual for 1900.) Was Professor of Meteorology, U. S. Weather Bureau; author of various papers on meteorology.

### 1874

**James Trask Woodbury, A.B.** Farmer, Frankestown, N. H. Attended the two years' course, but did not formally graduate.

### 1875

**Charles Everett Andrews, A.M.** Congregational minister and farmer, Walpole, Mass. (1906)

**Henry Martyn Paul, A.M.** Astronomer, U. S. Navy until 1899. Engineer in Bureau of Yards and Docks, until Sept., 1905. Since that time Professor of Mathematics, U. S. Naval Academy, Annapolis, Md. T.S.

**Jonathan Parker Snow.** Chief Engineer, Boston and Maine Railroad System from July 1, 1909, to July 1, 1911; having been bridge engineer since June, 1888. Consulting Civil Engineer, Office 18 Tremont St., Boston, Mass. Res. at 58 Chandler St., W. Somerville, Mass. Overseer THAYER SCHOOL C. E., Director Am. Soc. C. E. Member Boston Soc. C. E., member Am. Soc. for Testing Materials, and Am. Ry. Eng. Assoc. T.S. Author of valuable



committee reports and contributed discussions on iron and steel structures.

**\*\*Edward Lewis Gage, B.S.** Died at Chicago, Ill., April 21, 1892. Was railroad engineer and ranchman in Texas.

## 1876

**\*\*Walter Henry Foster, B. S.** Died at Rutland, Vt., April 2, 1878. (See Annual for 1899.) Teacher.

**John Vose Hazen, B.S.** Professor of Civil Engineering and Graphics, Chandler Scientific Course, and in the THAYER SCHOOL OF CIV. ENG., Dartmouth College. Memb. Am. Soc. C. E. Memb. of Soc. for Prom. of Eng. Educ. T.S. In practice as a Surveyor and Civil Engineer. Commissioner, Hanover Village Precinct,—in charge of street paving and improvements, nine years; School Commissioner, etc.

**Charles Holmes Pettee, A.M.** Professor of Mathematics, Dean of New Hampshire College, Durham, N. H. Memb. of Soc. for Prom. Eng. Educa., and of the A. A. A. S. Recently visited Southern California.

## 1877

**Edward Kellogg Blanchard.** Chief Eng. Wyoming Const. and Development Co., Buffalo, Wyo. Res. Seymour, Mo.

**George Arthur Butler, A.B.** Assistant Engineer, Bridges and Building Dept., Ill. Cent. R. R. 6730 Normal Ave., Chicago, Ill. Last report from Bloomington, Ill. (1902)

**John Whitcher Record.** Engineer for Buffalo Dredging Company; dredging, construction of canals, breakwaters, docks, and foundations, Buffalo, N. Y., until 1912. Res. 2206 Main Street. Retired on account of poor health.

**John Alberto Worthen, B.S.** Civil Engineer, general practice, 557 Montclair Ave., Oakland, Cal. Res. 3618 University Ave., Los Angeles, Cal.

## 1878

**John Dye Lonsdale.** Manufacturer, Dale City, Guthrie Co., Ia. Lately County Surveyor. (1909)

**\*\*Mace Moulton.** Lately Consulting Engineer for iron and steel structures, New York City. Died suddenly, April 27, 1909. (See Annual for 1909.)

## 1879

**Ray Timothy Gile, B.S.** Civil Engineer and Surveyor, 61 Pleasant St., Littleton, N. H. Surveys for and construction of railroads, highways, sewerage, and waterworks; exploring, estimating and surveying of timber lands. T.S.

## 1880

**\*\*Chalmers Williams Stevens, M.S.** Killed by lightning, at National Observatory, Cordoba, Argentine Republic, Feb. 16, 1884. (See Annual for 1899.) The fine chime of bells for Rollins Chapel, Dartmouth College, was given as a memorial of Mr. Stevens by the late Hon. William E. Barrett of Boston, Mass. (Dart. Coll., 1889.)

## 1881

**\*\*Hiram Augustus Hitchcock, B.S.** Assoc. Prof. Civil Engineering, THAYER SCHOOL OF CIVIL ENGINEERING, 1883 to 1895. Died at Hanover, N. H., January 17, 1895. (See Annual for 1899.)

**\*\*Elmer Kilburn.** Died at Omaha, Neb., April 16, 1881.

*Charles Damon Lamb, B.S.* Asst. Engr. U. S. A., U. S. Eng. Depot, foot of Arsenal St., St. Louis, Mo. Res. 3647 Hartford St.

*David Ramsay Reed, B.S.* Mining Engineer, 304 Boston Building, Denver, Col. Practice in the Western and Southern States.

## 1882

**Sidney Bates Cady, A.B.** (Middlebury College.) Asst. Engr. Board of Public Improvements, Topographical Bureau, Borough of Brooklyn, New York City. Memb. of Soc. of the Municipal Engrs. of the city of New York. Res. Walnut Terrace, Bloomfield, N. J.

**\*\*Edmund Dorman Libby, A.B.** Died in Concord, N. H., April 24, 1903. (See Annual for 1903.) Was U. S. Engr. on Mississippi river improvement, St Louis to Cairo, about 14 years.

**John Alexander Macnicol.** Consulting Eng. for the Snare & Triest Co., 143 Liberty St., New York City, and Havana. Box 733. Havana, Cuba. Memb. Am. Soc. C. E. T.S. Concrete and steel pier construction in Havana and Cienfuegos; various constructions for government of Cuba, and for the U. S. Navy Station, Guantanamo; terminal and ferry terminals and shops for United Railways of Havana, etc. (1910)

**\*\*Dana Chase Barber.** Died at his home, near Philadelphia, 1889. (See Annual for 1899.) Was a sanitary engineer in Philadelphia.

## 1883

**Sinclair Joseph Johnson, A.M.** (University of Wooster, O.) Railway and Automobile Specialties: 50 Church St., New York City. Res. 28 Montclair Ave., Montclair, N. I.

**Solomon Barnes Merrill, A.B.** In practice as Civil Engineer and Assayer. Since April, 1905, Secretary-Treasurer of Boulder Iron Works, Boulder, Colo. Address: 821 Mapleton Ave. (1910)

**\*\*George Riedemann, B.S.** (College of the City of New York.) Died in New York, May 11, 1885.

## 1885

**Daniel Edward Bradley, B.S.** Berlin, Conn. Retired in May, 1910. Out of business at present. Memb. Am. Soc. C. E., and of Conn. Soc. C. E. T.S. (1911)

**Ralph Henry Brown.** Chief Engineer, Eastern Bridge and Structural Co., Worcester, Mass. Office and Works: Crescent St. Memb. Am. Soc. C. E. T.S.

**John Jacob Hopper, B.S.** Contractor and Civil Eng. 215 West 125th St., New York City. Jun. Am. Soc. C. E. Memb. Engineers Club. T.S. Mr. Hopper built the section of the N. Y. Rapid Transit Subway, 104th St., to Harlem River, including the tunnel through Central Park, executing this large contract without any serious accident. (1910)

**\*\*Arthur Walker, A.B.** (Univ. of Wooster, O.) Died Sept. 27, 1891. Was a bridge draftsman and designer, Pittsburg, Pa.

**John James Marshall.** Student through the two years' course. Did not formally graduate. Last report: Marshall & Atherly, Engrs. and Contractors, Basin, Wyo. T.S. (1910)

**\*\*Irving Benjamin Hayes, A.B.** Physician, Florence, Mass. Died Jan. 3, 1909. (See Annual for 1910.)

**Benjamin Phillips, A.B.** Patent Lawyer, 53 State St., Boston, Mass. Phillips, Van Everen & Fish. Res. Lakeville, Mass. (1910)

1886

**Walter Whaley Curtis.** Consulting Civ Eng., 537 So. Dearborn St., Chicago, Ill. Has made investigation on preservative processes for railway ties; (Trans. Am. Soc. Civ. Eng. Vol. XLII, etc.). Western representative of the Toledo Bridge and Crane Co. Expert in patent cases. Memb. Am. Soc. C. E., St. Paul Soc. C. E., Western Soc. of Eng., and Am. Ry. Engineering Assoc.

**Malverd Abijah Howe, M.S.** (Norwich University, Vt.) Prof. of Civil Eng. and Director of the Course in Architecture, Rose Polytech. Inst., Terre Haute, Ind. Memb. Am. Soc. C. E., Soc. for Prom. Eng. Educ., Am. Assoc. Adv. Sci., Am. Soc. for Testing Materials. Author of works and articles on theory of arches and bridge trusses.

**John Duncan Hutchinson, A.B.** (Middlebury College, Vt.) Civil Engineer, Antrim, N. H.

**John Frank Springfield, A.B.** Public Utilities, Hutchinson, Kan. Perm. 64 Summer St., Rochester, N. H. T.S. (1911)

**Frank Lyon Wheaton.** Eng. Dept., D. L. & W. Ry., Hoboken, N. J. Res. 85 South Arlington Ave., East Orange, N. J. With this company since 1900 as Eng. of construction: having charge of the new double track tunnel through the Palisades, Jersey City; located the Hopatcong cut-off in northern New Jersey, supervising this very heavy construction, including two long arch bridges and ninety road culverts under high fills. (See his descriptive paper in *Eng. News*, Aug. 13, 1908; also in *Eng. Record* and *Railroad Gazette*.) Memb. Am. Ry. & Engineering Assoc. T.S. Now in charge of construction of 40 miles of new line northwest of Scranton, a double track tunnel 3600 ft. long, a concrete viaduct the largest in the world, 248 ft. high and 2300 ft. long, and another 150 feet high and 1500 ft. long.

**Rush Chellis, A.B.** Claremont, N. H. General practice as Engineer and Surveyor in Sullivan County and adjoining district. Also farmer and breeder of Jersey cattle. Representative, N. H. legislature, 1907 and 1909.

**Edwin Preston Dewey, B.S.** (New Hampshire College.) City Engineer, City Hall, Long Beach, Cal. Res. 829 Chester Place.

**Robert Hunter.** Present address unknown.

## 1887

**Walter Eugene Angier, B.S.** Since May 1, 1910, memb. of firm: Modjeski and Angier, Civil Engineers, 220 So. Michigan Ave., Chicago. Pittsburg office, 607 Arrot Bldg., Pittsburg, Pa. Lately Res. Eng. Thebes Bridge, Thebes, Ill. Res. 4538 Oakenwald Ave., Chicago, Ill. Memb. Am. Soc. C. E. Memb. Western Soc. Engrs. Memb. of Chicago Engrs. Club.

**Samuel Morey Wilcox, B.S.** U. S. Asst. Eng. in charge of field office and work for improvement of Galveston Harbor; Office U. S. Engr., Galveston, Tex. Acting Prin. Asst., 1912.

## 1888

**Charles Herman Cheney, M.A.** Memb. and auditor, Cheney Brothers, Silk Manufacturers, South Manchester, Conn. (estab. 1838, incorp. 1854); advisory memb. of Board of Directors. Treas. S. Manch. R. R. Co. T.S.

**Charles Henry Nichols, B.S.** (M. C. E. Norwich Univ., Vt.) Consulting Engineer; structural steel, foundations, reinforced concrete, timber-construction, etc. Office 45 E. 42d St., New York City. Res. River Road, Bogota, N. J. Memb. Eng. Soc. Western Pa. T.S. Has designed the steel-work for some of the largest buildings in New York: lately the Bankers' Trust Bldg.; foundations for the Municipal Bldg., etc.

## 1889

**Charles Lincoln Carpenter, B.S.** Since Dec., 1911, Asst. Gen. Manager Central Aguirre Co. and Supt. Ponce & Guayama R. R., Central Aguirre, Porto Rico. Memb. Am. Soc. C. E., Am. Ry. Engrs. Assoc., and of Am. Soc. of Contracting Engrs. T.S.

**Charles Francis Chase, A.B.** Chief Eng., Berlin Construction Co., Berlin, Conn. Res. New Britain, Conn. Memb. Am. Soc. C. E., and of Conn. Soc. C. E. T.S. Since May 1, 1912, Chairman of the Board of Water Commissioners, New Britain.

**Herbert Stacy Eaton, B.S.** Asst. Eng. Visalia Elect. Ry. Co., Lemon Cove, Tulare Co., Cal. Res. Caruthers, Fresno Co., Cal. (1909) Letter returned unclaimed, 1911.

**Arthur Woodbury Hardy, B.S.** (New Hampshire College.) Consulting Engr. for Fire Protection Eng., 431 South Dearborn St., Chicago, Ill. Pres. Garden City Spring Works, 2300 Archer Ave. Res. 4020 Ellis Ave. T.S.

**Otis Ellis Hovey, B.S.** Asst. Chief Engr. American Bridge Co. of New York, Hudson Terminal Bldg., 30 Church St., New York City. Res. 304 W. 7th St., Plainfield, N. J. Memb. Am. Soc. C. E., Memb. Soc. for Testing Materials. Overseer of the THAYER SCHOOL OF CIV. ENG. T.S.

**\*\*William Robert Michie.** Died Feb. 2, 1899, at Johnstown, Pa. (See Annual for 1899.)

**Frank Berry Sanborn, B.S.** Prof. of Civil Eng., Tufts College, Mass. Consulting practice in engineering. Memb. Am. Soc. C. E., of Boston Soc. C. E., and Soc. for Prom. Eng. Educ. T.S. Res. Cambridge B, Mass. Director Boston Insulated Wire Cable Co. Author of "Mechanics' Problems," and "A Public Health Survey of Lawrence, Mass." Inventor of a speedometer for boats.

*Thomas Flynn.* Res. 511 East 134th St., New York City. T.S. (1910)

#### 1890

**Amasa Burton Clark, B.S.** President of Clark & Company, Engineers and contractors, 225 Fifth Ave., New York City. Specialty: foundations, having designed, constructed or repaired foundations for a variety of structures in New York and elsewhere. Consultation in matters relating to foundations situated at widely separated points. President of Thayer Society of Engineers of Dartmouth College, 1909. T.S.

**William Nelson Hazen, B.S.** (New Hampshire College.) Eng. for Am. Concrete-Steel Co., Essex Bldg., Newark, N. J. Res. 361 Park Ave., E. Orange, N. J. Memb. Am. Soc. C. E., and Soc. for Testing Materials. T.S.

**Hiram Newton Savage, B.S.** (New Hampshire College.) Supervising Engineer in the U. S. Reclamation Service. Office at Helena, Montana. Address also in care of U. S. Reclamation Service, Washington, D. C. Supervising the numerous projects in the Northwest, nine under construction; five in operation. Memb. Am. Soc. C. E. T.S. Office at Great Falls after October.

**George Pillsbury Wood, B.S.** (New Hampshire College.) Asst. Eng., Board of Water Supply, City of New York, from Nov. 14, 1906, to Feb. 28, 1911. Since latter date Div. Eng. in charge of Peekskill Div. Res. 217 Walnut St., Peekskill, N. Y. Memb. of Am. Soc. of C. E. T.S.

## 1891

**Hardy Smith Ferguson, B.S.** Chief Eng. Great Northern Paper Co. and West Branch Driving and Reservoir Dam Co., Millinocket, Me. Memb. Am. Soc. C. E. Memb. Am. Soc. Mech. Eng., and Can. Soc. C. E. T.S. Consulting Engr. for water power development, and construction and equipment of manuf'g plants. Since Feb., 1911, Consulting Eng., 200 Fifth Ave., New York City. Home address: after Oct. 1st, New York City.

**Edward Dana Hardy.** U. S. Asst. Eng., Supt. of the Washington Aqueduct and Washington Aqued. filtration plant. 1st and Douglas Sts., N. W., Washington, D. C.; res. 2425 First St., N. W. Memb. Am. Soc. C. E., New Eng. Water Works Assoc., Am. Water Works Assoc., Washington Soc. of Engrs., and Wash. Acad. of Sciences. T.S.

**\*\*Fred Ellsworth Lamb, B.S.** Died at Northfield, Vt., July 28, 1893. Was U. S. Junior Engr. and bridge draftsman.

**George Francis Sparhawk, B.L.** Engineer in charge of drafting room, American Bridge Co. Address: Care of Am. Bridge Co., Ambridge, Pa. Res. 490 East End Ave., Beaver, Pa. Memb. Am. Soc. for Testing Materials. T.S.

## 1892

**Arthur Willard French.** Prof. of Civ. Eng. and head of the Dept., Worcester Polytech. Inst., Worcester, Mass. Res. 202 Russell St. Memb. Am. Soc. C. E., Am. Soc. Prom. Eng. Educ., National Cement Users Assoc. and Nat'l Geog. Soc. T.S. Consulting Engr. for reinforced concrete construction, etc. Chairman of the Commission on Relief of Street Congestion.

**\*\*William Hazelton Puffer.** Died at Pecos, Texas, of cerebro-spinal meningitis, March 17, 1912. See *Necrology*.

**Charles Frederick Robinson, A.M., S.T.B.** Pastor of Central Congregational Church, Derry, N. H. Res. 11 Crescent St., Village Station, Derry.

## 1893

**Herman Edward Abbott.** Asst. Eng. East Jersey Water Co., Paterson, N. J. Res. 158 Ellison St. T.S. Also consulting practice.

**Edwin John Morrison, B.L.** Pres. and Chief Eng. Hastings Pavement Co., 25 Broad St., New York. Vice Pres. Asphalt Block Pavement Co., Toledo, Ohio. Res. 27 Landscape Ave., Yonkers,

N. Y. Has been about nineteen years with this company, and responsible director in the successful execution of many large contracts in the Eastern and Middle states, in which opportunities have been found for the employment of a considerable number of THAYER SCHOOL men from year to year. Member of the Chamber of Commerce. T.S. Pres. of the Dartmouth Club of New York, 1909-10.

**John Walker.** Lumber manufacturer and dealer in timber lands, Newmarket, N. H. Pres. of Sable Lumber Co., L't'd. About 60 sq. miles timber tracts in Nova Scotia, six miles of standard gauge railroad for development. Capital \$200,000. Office: Newmarket, N. H.; Mills: Sherburne and Queen's Counties, N. S.

**Sidney Grant Walker, B.S.** Lately Civil Eng. and Contractor in Hawaii. Since 1905, Insurance Engr. for the Manufacturers, Rhode Island, Mechanics, State, Enterprise, and American Mutual Fire Ins. Co's., John R. Freeman, President, 815 Grosvenor Bldg., Providence, R. I. Res. 50 Montague St. Memb. Am. Soc. M. E. T.S.

#### 1894

**Percy Lovejoy Barker, B.S.** (New Hampshire College.) Supervisor of Bridges and Buildings, N. Y. C. & H. R. R. Co., Jersey Shore, Penn. T.S.

**Edward Monroe Stone, B.S.** (New Hampshire College.) Architect and Engineer, 49 Pearl St., Hartford, Conn. Memb. Conn. Soc. Civ. Engrs. Home address: 11 Summer St. T.S.

**Henry Allan Symonds.** Consulting Eng., 79 Milk St., Boston, Mass.; hydraulic work and water supply a specialty, including management of works. Res. 174 Lexington St., Waverly, Mass. Memb. Boston Soc. C. E. and New Eng. Water Works Assoc. T.S.

#### 1895

**William Marston Ames, B.S.** Contracting and General practice, Berwick, Me. Memb. Maine Soc. Civil Engrs.

**Fred Rufus Davis.** Inspector Assoc. Factory Mutual Fire Ins. Co's. until Sept. 1, 1911. 810 Denckla Bldg., Philadelphia, Pa. Perm. Goffstown, N. H. Assoc. Memb. Am. Soc. C. E. and National Fire Protection Assoc. T.S.

**William Hayden Ford, B.S.** Civil and Consult. Engr. 1024 Arcade Bldg., 15th and Market Sts., Philadelphia, Pa. Memb. Am. Soc. C. E. and Engrs. Club of Philadelphia. T.S.



**Arthur Benjamin Ilsley, B.S.** Engineer of Bridges, Southern Ry., 1300 Penn. Ave., Washington, D. C. Res. 2930 Macomb St., Cleveland Park, N. W. Assoc. Memb. Am. Soc. Civ. Engrs. T.S.

**John Young Jewett, B.S.** (New Hampshire College.) Cement Expert, U. S. Reclamation Service, having supervision of all matters relating to purchase, test, and shipment of cement for the Service. Headquarters at 408 Commonwealth Bldg., Denver, Colo. Assoc. Memb. Am. Soc. C. E. Memb. Am. and International Soc. for Testing Materials, and Nat'l Assoc. Cement Users. T.S.

**\*\*Robert Doty Maynard, A.B.** Died in Springfield, Mass., May 26, 1906.

**George Woodbury Parker, B.S.** Since Oct. 18, 1905, firm of Welsh and Parker, Civ. Engrs. and general insurance agents, Hudson, Mass. (1911)

**William Collins Phelps, B.S.** Principal Assistant Engineer, Interborough Metropolitan Co., 165 Broadway, New York City. Perm. address: 3 Hancock Park, Cambridge, Mass. Memb. Am. Soc. C. E. T.S.

**Herbert Russell Thurston, B.S.** Reported by W. B. Plumer of 1897 to be with the Assoc. Factory Mut. Fire Ins. Cos., 31 Milk St., Boston, Mass. Home address: 27 Prospect St., Somersworth, N. H. T.S. (1911)

**Frank Hamant Trow, B.S.** Lately Div. Engr. on construction of Wachusett Dam for Met. Water and Sewerage Board, Clinton, Mass. Since Oct. 1, 1908, Chief Engr. for Winston & Co., on the contract for the main dams for the Ashhokan reservoir, Brown Station, N. Y. Assoc. Memb. Am. Soc. C. E. T.S.

**Arthur Allan Adams, B.S.** For many years Superintendent of Streets and Sewers, Springfield, Mass. Pres. of the firm of Birnie, Adams & Ruxton Construction Co. Res. 78 Westminster St. T.S.

**Charles Timothy Rossiter, B.S.** Farmer and cattle breeder, Claremont, N. H. In a letter not long ago testified to the value of college work as contributing decidedly to large success in his occupation, to which he was impelled by ill health. (1910)

**Benjamin Franklin Welton, B.S.** Examining Engr. in charge of Bureau of Efficiency, Commissioners of Accounts, 280 Broadway, New York City. Assoc. Memb. Am. Soc. C. E. Res. at 1 Weiner Place, Tompkinsville, New York City. T.S. Author of article in *Annals Am. Soc. Polit. and Social Science*, May, 1912, on "Efficiency in Municipal Labor."

1896

**Edwin Roscoe Davis, B.L.** Div Eng. on construction of viaducts of reinforced concrete on the Key West Extension of the Florida East Coast Ry. Marathon, Fla. T.S. (Letter of 1911 returned unclaimed.)

**\*\*Frederick Reginald French.** Lately Assistant Chief Engineer for harbor works, Manzanillo, Mexico. Died Nov. 20, 1904, at Santa Barbara, Cal. (See Annual for 1905.)

**William Harry Langmaid, B.S.** Permanent address: Pike, N. H. With the Pike Mfg. Co. (quarries and factories in Ark., Ind., Vt., and Littleton, N. H.) during the past fifteen years, surveys and office work. Res. East Haverhill, N. H.

**John Henry Letteney, B.S.** Contractor for dredging, dock, river and harbor improvements. 101 Tremont St., Boston, Mass. Res. 18 Allerton Road, Newton Highlands, Mass. T.S.

**Samuel Julian Lord, M.L.** Chief Engineer of the City of Manchester, N. H., and head of the Board of Street and Park Commissioners. Mr. Lord has made the office of the city engineer a recognized and popular "institution" of the city. T.S.

**George James McIndoe, B.S.** Asst. Eng. in charge of construction department, Hastings Pavement Co., 25 Broad St., New York City. Res. 2685 Heath Ave., Bronx Borough. T.S.

**Arthur William Stone, B.S.** Engineer on construction, and Gen. Supt. of Works, for Wm. Bradley & Son, Cut Stone Contractors, New York and Brooklyn, Cleveland & Bedford, Ind. 547 Vernon Ave., Borough of Queens, New York City. Perm. Hartford, Vt. T.S. (1910)

**Harlan Augustus Cochran, B.S.** Permanent address: West Derry, N. H. Since Feb., 1905, associated with the Perkins Hardy Co., Shoe Mfg., West Derry, N. H. (1909)

**Charles Arthur Holden, B.S.** Graduate, T. S. C. E. 1901. (See beyond.)

**\*\*Alexander Anderson McKenzie, B. S.** Died at Hanover, N. H., August 25, 1904. Was Supt. of Bldgs. and Engr. for Dartmouth College. (See Annual for 1904.)

1897

**\*\*Sidney Willis Bowles.** Died at Easton, N. H., March 7, 1902. Was Forester and Overseer of Dartmouth College Grant, N. H. (See Annual for 1902.)

**Henry Norwood Chase, B.L.** U. S. Junior Engr., since August 3, 1904, on harbor improvement, U. S. Engineer Office, 25 Pemberton Square, Boston, Mass. Address: 83 Highland Road, W. Somerville, Mass. Home address: West Harwich, Mass. (1909)

**Moses Harry Hoyt, B.S.** Asst. Chief Draftsman, Belmont Iron Works, 22nd St. and Washington Ave., Phila. Res. 102 E. Franklin St., Media, Penn. Perm. 92 Charles St., Fitchburg, Mass. (1909)

**Samuel Alexander McCoy, B.S.** Since July 18, 1909, member of the firm of Boynton, Church & McCoy, Contractors, 603 German Life Bldg., St. Paul, Minn. "Handling general railroad construction in the Northwest." Res. 1725 Eleventh Ave., Spokane, Wash. Memb. Am. Soc. Civ. Engrs. T.S.

**Hugh Burdette Tabor, B.S.** With U. S. Steel Product Export Co., 30 Church St., New York City. Now Asst. Gen. Representative U. S. S. P. Exp. Co., 544 Bartolomé Mitre, Buenos Aires, Argentine Republic, S. A. Home address: Hanover, N. H. T.S.

*Edward Jothan Johnson, B.S.* Lately City Engineer, Nashua, N. H. Now Civ. Eng. Spokane, Wash., 219-220 Lindelle Bldg. Res. 841 Cliff Ave. Memb. N. E. Water Works Assoc., and Boston Soc. C. E. T.S.

*William Blaisdell Plumer, B.S.* Asst. Supt. Plan Dept., Assoc. Fact. Mut. Fire Ins. Cos., 31 Milk St., Boston, Mass.

*\*\*Herbert Augustus Rowe, B.S.* Died at Holyoke, Mass., October 8, 1901. Was Mill Engr. for Tower and Wallace. (See Annual for 1902.)

*Herbert Andrew Warden, B.S.* One year post-graduate study at Cornell University. Electrical Engr., 14 South Water St., Newburg, N. Y. (1910)

## 1898

**James Leland Averill.** (C.E. Norwich University, also.) Ch. Eng. for Hamilton & Chambers, 29 Broadway, New York City, since May 15, 1911. Perm. Northfield, Vt. Assoc. Memb. Am. Soc. C. E. T.S.

**William Hoyt Balch, B.S.** Eng. Aberthaw Construction Co., Boston, Mass., up to 1908. Since March 1, 1909, Asst. Director,

Direccion de Obras Publicas, Republica Dominica, Santo Domingo City, W. I. Res. Hudson, Mass. Memb. Am. Soc. C. E. and Boston Soc. C. E. T.S.

**Maurice Fritchley Brown, B.S.** Chief Engineer Boston Bridge Works, 47 Winter St., Boston, Mass. Res. Winchester. Memb. Am. Soc. C. E., of Boston Soc. C. E., and of Am. Ry. Eng. Assoc. T.S.

**William Hale Ham, B.S.** Since March, 1909, consulting eng. associated with French & Hubbard, Cons. Engrs., 88 Pearl St., Boston, Mass. Res. 37 Westbourne Road, Newton Center, Mass. Memb. Am. Soc. C. E. Memb. Nat. Assoc. of Cement Users; Chairman of its Comm. on Insurance.

**John Leroy Mann, B.A.** Lately Assoc. Professor in Civil Engineering at the THAYER SCHOOL OF CIVIL ENGINEERING. Asst. Engr. Reclamation Service, Belle Fourche Project, Jan., 1905, until 1908. Since then Ingeniero del Gobierno, Dept. Public Works, Dominican Republic, W. I., in the following capacities: Engineer Director of Irrigation in Monte Cristi, Acting Director General, Chief Engr. Ferrocarril del Norte, and Director General of Public Works since Apr. 1. Address: Santo Domingo City. Memb. Am. Soc. C. E. Memb. Am. Soc. Eng. Contractors and of Boston Soc. Civ. Engrs. T.S.

*Harold Bemis Shattuck, B.S.* Assoc. Professor of Civil Eng., Penn. State Coll. Res. 122 West Beaver Ave., State College, Penn. Degree of B.S. in Civil Engineering from Pennsylvania State College, June, 1904. Memb. of Soc. for Prom. Eng. Educ., Engrs.' Soc. of Pennsylvania, and Nat. Geo. Soc. Perm. 17 Orange St., Nashua, N. H.

#### 1899

No graduates. The seven members of this class were granted leave of absence for one year to accept professional employment. All the members were graduates of Dartmouth College in 1898. Three were graduated from the THAYER SCHOOL in 1900, one in 1901, and one in 1903.

*Myron George Littlefield, B.S.* Since July 20, 1908, draftsman, McClintic-Marshall Construction Co., Rankin, Pa., where he may be addressed. (1911)

*Oscar Persons Tabor, B.S.* Draftsman for the Norcross Bros. Co., Worcester, Mass. Address: 286 Lincoln St.

## 1900

**Henry Wallace Clark, B.S.** Supt. of construction for the Norton-Griffiths Steel Const. Co., Ltd., since May, 1911. Address: 1733 Bank St., Victoria, B. C.

**John Alfred Gilman, B.S.** Civil and Mining Engineer in Greenville, Ky. Gen. Mgr., Sec. and Treas., Greenville Light and Water Co.

**Albert Henry Greenwood, B.S.** Since April 1, 1910, in private practice, firm of Greenwood & Noerr, Cons. Engrs., 847 Main St., Hartford, Conn. Res. 39 Capen St. Asso. Memb. Am. Soc. C. E. Memb. Conn. Soc. C. E. T.S. Largely mill and factory construction, including light, heat, and power.

**George Henry Nolan, B.S.** Manager of the Cuba Branch of the Snare and Triest Co., 143 Liberty St., New York City. Box 733, Havana, Cuba. Perm. Middleboro, Mass. T.S.

**Luther Stevens Oakes, B.S.** Lately Div. Eng. Great Northern and Northern Pac. Rys. Member of the contracting firm of Winston Bros. Co., 801 Globe Bldg., Minneapolis, Minn. Now at Lamont, Ill., on contract for excavating Sect. 2 of Calumet Sag Channel of Sanitary Dist. of Chicago. Perm. care Dr. H. Burbridge, Woodstock, Vt. Assoc. Memb. Am. Soc. Civ. Engrs. T.S.

**Herbert Leslie Watson, B.S.** Electrical Dept., N. Y., N. H. & H. R. R. Office Bldg., New Haven, Conn. Ch. Draftsman in charge of office and all structural steelwork and foundations. Res. 201 Ellsworth Ave. Perm. care of D. A. Watson, 325 Young St., Manchester, N. H. T.S. Designing steel supports for overhead electrical system on the main line from Stamford to New Haven, Conn., and from Providence to Boston.

**Thomas Tupper Whittier, B.S.** Assistant Engineer for George F. Hardy, Mill Engr., 309 Broadway, New York City; located in the home office. Home address: 395 Adelphi St., Brooklyn, N. Y. Memb. Am. Soc. C. E. T.S.

**Philip Harold Winchester, B.S.** Since Jan. 1, 1910, Div. Engineer, St. Lawrence Div., N. Y. C. & H. R. R. R. Res. 303 Ten Eyck St., Watertown, N. Y. Assoc. Memb. Am. Soc. C. E. T.S.

*\*\*John McQuesten French, B.S.* Died suddenly August 29, 1906. (See Necrology in Annual for 1906.)

*Albert Leet Galusha, B.S.* A. L. Galusha & Co., 215 Norfolk St., Dorchester Center, Mass. Manufacturing marine and land gas producers for power purposes.

*John Leonard Sanborn, B.S.* Student two years; failed to qualify for graduation. Reported to be with Elmore & Hamilton, Jamaica, Long Island, N. Y. (1909)

*Edward Beaumont Wardle, B.S.* Engineer in charge of construction of pulp and paper mills for Geo. F. Hardy, Mill Engr. (Dartmouth Coll., 1888), 309 Broadway, New York City. Duties chiefly at the home office. Home address: 16 Daily St., West Nutley, N. J. Memb. Am. Soc. C. E. T.S.

## 1901

**John Albert Anderson, B.S.** 416 Third St., Baton Rouge, La. Dealer in books, stationery, school books, pictures, music, and college supplies.

**Alvah Tennant Fowler, B.S.** Topographer, U. S. Geological Survey, Washington, D. C. Perm. 117 Center St., Concord, N. H. Member of National Geographic Soc. and Washington Soc. Engrs. T.S. In 1909, topographer in upper Sacramento Valley, Calif., co-operating with the State on projects for drainage and irrigation. Lately making a profile survey of the Deschutes River, Oregon. (1911)

**Charles Arthur Holden, B.S.** Professor of Civ. Eng., THAYER SCHOOL OF CIVIL ENGINEERING, Hanover, N. H. Memb. Am. Soc. for Prom. Eng. Education. Assoc. Memb. Am. Soc. C. E. Memb. National Geog. Soc. T.S. Local practice as Surveyor and Civ. Eng.

**Charles Hamilton Hoyt, B.S.** Perm. Care F. H. Hoyt, Nashua, N. H. Supt. of Road Construction, Office of Public Roads in charge of Division of Highway Bridge Eng., Washington, D. C. Lately assigned as expert advisor to Governor Bass on the State Roads of N. H. Degree of LL.B. from National Univ. Law School. T.S. (1911)

**William Loveland Hutchinson, B.S.** Res. at Cecil, Washington Co., Pa., 20 miles from Pittsburg, where he is also managing his own stock farm.

**Clarence Erwin Paddock, B.S.** Lately with Berlin Construction Co., Berlin, Conn. Since Sept. 1, 1909, Teacher of Applied Mathematics, Springfield (Mass.) Technical High School. Res. 13 Northampton Ave., Springfield, Mass.

**Charles Sargent, B.S.** Asst. Eng. U. S. Reclamation Service, Mitchell, Neb. Perm. Walpole, N. H.

**Frank Dana Sears, B.S.** Supervising Prefect of Girard College, Philadelphia, Pa.

**Samuel Justin Smith, B.S.** Lately Asst. Eng., North Pacific R. R. Member of contracting firms of G. A. Carlson & Co., and Carlson, Chindahl & Co., railroad contractors, 322 Fernwell Bldg., Spokane, Wash., and Summerland, B. C. Perm. Windsor, Vt.

**\*\*John Hutchinson Wood, B.S.** Lately Assistant Engr., Dept. of Public Works, Bureau of Water, Pittsburg, Pa. (See Annual for 1910.)

*John William Ash, B.S.* Lately Asst. Eng. for Southern Railroad. Civil Engr. and Contractor, Chattanooga, Tenn. Res. at Austell, Ga. Building waterworks, electric light plant, etc., and reinf. concrete viaduct for Sou. Ry. and the city. T.S.

*Edgar Randall Cate, B.S.* Lately member of firm, New Jersey Boiler Co., Boonton, N. J. Pittsburg representative of Westinghouse, Church, Kerr & Co., 10 Bridge St., New York City. Address: Union Bank Bldg., Pittsburg, Pa. T.S.

*Jasper Manlius Gibson, B.S.* Lately with Post & McCord. Now Sec. and Treas. Mulcahy & Gibson, Inc., contractors and engineers, steel structures. 168 Madison Ave., New York City. Res. East Williston, Long Island. Memb. Am. Soc. Civ. Engrs. T.S.

*Charles Augustus Rich, B.S.* Returned from South Africa in April, 1905. Supt. of underground electrical construction and distribution for Peoria Gas & Electric Co. Res. 3116 Western Ave., Peoria, Ill. (1911)

*Wilfred Carey Risley, B.S.* Field Engineer of the Dominion Iron & Steel Co., P. O. Box 2, Sydney, Nova Scotia. In charge of construction of all foundations, railway tracks and sewers for six million dollar plant extensions. Lately built 120 by-product coke ovens, two 300-ton blast furnaces, two 500-ton open hearth furnaces, bar, wire, and nail mills, power plant, water supply, and a steam turbine plant. T.S.

*Horace Holmes Sears, B.S.* Lately Cons. C. E. Head of Math. Dept., Lick School (Calif. School of Mech. Arts), San Francisco, Cal. City Engr., Redwood City, San Mateo Co., Calif., where he resides. Charter Memb. of the Sacramento Civil Engrs. Assoc. T.S.

*Embert Hiram Sprague, B.S.* After residence of six years returned from South Africa, Sept., 1909. Engr. for Mulcahy and Gibson, 168 Madison Ave., New York City.

## 1902

**John Gilbert Andrews, B.S.** Contracting Engr. Boston Bridge Works, Inc., 47 Winter St., Boston, Mass. Res. 131 Bacon St., Natick, Mass. Memb. Boston, Soc. Civ. Engrs. T.S.

**Charles Richard Chase, B.S.** Asst. Eng. in charge of contract No. 42, Barge Canal, Dept. of New York State Engineers. Barge Canal Office, Utica, N. Y. Res. 16 Hobart St., Utica, N. Y. Perm. Rochester, N. H. 3d Vice-President Albany Soc. C. E. Memb. Soc. of Engrs. of Eastern New York.

**John William Crowell, B.S.** Since Oct. 1, 1905, Professor of Civ. Eng. at Mt. Allison University. P. O. Box 35, Sackville, N. B., Canada.

**Frank Ezekiel Cudworth, B.S.** Lately Assistant Engineer Phoenix Bridge Co., and Inspector of dry dock No. 4, Navy Yard; now Engr. for Holbrook, Cabot & Rollins Corporation, 331 Madison Ave., New York City. Memb. Am. Soc. Eng. Contractors. T.S. Past three months Res. Engr. on pneumatic foundation for Adams Express Bldg.

**Donald Derickson, B.S.** Assistant Prof. of Civ. Eng., Dept. of Bridge and Structural Engineering, Cornell University, Ithaca, N. Y. Private practice, designs and reports on bridges and structures of reinforced concrete.

**Edgar Hayes Hunter, B.S.** Superintendent of Buildings for Dartmouth College, Hanover, N. H. T.S.

**James Bradford McIntyre, B.S.** Lately Gen. Foreman of Erection North Works Ill. Steel Co., Chicago, Ill.; erected the new plant of the Steel Corporation at Gary, Ind. Supt. Ill. Steel Warehouse Co. since April, 1912; 21st and Gratiot Sts., St. Louis, Mo.; perm. Randolph, Vt. Memb. Western Soc. of Engrs.

**Francis Beal Marsh, B.S.** Since May 10, 1907, Asst. Engr., N. Y. Board of Water Supply, Designing Dept., 165 Broadway, New York City. Home: 19 Pinehurst Ave., New York City. Assoc. Memb. Am. Soc. Civ. Engrs. T.S.

**Frank Warren Newhall, B.S.** Since Feb. 1, 1908, Chief Engr., Coke Works of Republic Iron & Steel Co. Address: Republic, Fayette Co., Pa. Perm. Danvers, Mass. T.S.



**Arthur Henry Norris, B.S.** Lately Asst. Engr. Union Pac. R. R. Since Nov., 1907, in private practice, 1648 Park Ave., Fremont, Neb.; largely drainage work. In charge of preliminary surveys and construction for a drainage system for about 40,000 acres. Perm. 40 Pond St., Hyde Park, Mass.

**Warren Fuller Rugg, B.S.** Asst Engr. N. Y. Board of Water Supply. Since April 1, 1909, Asst. to Section Engr. on construction of Catskill Aqueduct, including open cut, grade tunnel and steel pipe siphon. 767 Elm St., Peekskill, N. Y. Assoc. Memb. Am. Soc. C. E. T.S.

**Everett Mellen Stevens, B.S.** President of Nashua Granite Co., 254 Main St., Nashua, N. H. Asst. Sales Mgr., Nashua Machine Co., 127 Federal St., Boston, Mass. T.S.

**Albert Lyman True, B.S.** While serving as Jun. Eng. U. S. Eng's. Office, mysteriously disappeared, March 10, 1906, from Portland, Me. Jas. S. Smith, a classmate, who has used every effort to solve the mystery, reported: "There is nothing known that can demonstrate that he is alive or dead."

*Earl Francis Whitaker, B.S.* Since May 1, 1909, Purchasing Agent for J. H. Williams & Co., drop forgings, 150 Hamilton Ave., Brooklyn, N. Y. Address: 7815 4th Ave., Brooklyn. T.S.

### 1903

**Carroll Worthen Davis, B.S.** Lately Supt. of construction, Harlem Contracting Co., New York. Civil Engr. and Surveyor. Contracting surveys for drainage, etc. T.S. Corning, Tehama Co., Calif.

**Royal Belden Doane, B.S.** Designer and Estimator, Berlin Const. Co., Berlin, Conn., since Apr. 15, 1912. Res. Maple Hill, New Britain. T. S.

**Leslie Boynton Farr, B.S.** President of the Harlem Contracting Co., 2 Rector St., New York. Manufacture and construction of asphalt block pavement. Res. Ft. Washington Ave. and 179th St. T.S.

**Harry Cyrus Hill, B.S.** State Engineer of New Hampshire, Jan., 1910, to Mar., 1912. Engineer for the Lane Const. Corporation, Meriden, Conn., since March 22, 1912. Res. 12 Chapman St., Binghamton, N. Y. Memb. Am. Soc. C. E., Am. Assoc. for Highway Improvement, Mass. Highway Assoc., and T.S.

**Maurice Joseph Leahy, B.S.** Asst. Eng. for Geo. F. Hardy, Mill Architect and Hydraulic Eng., 309 Broadway, New York City. On construction for Powell River Co., Powell, B. C. Perm. South Hadley Falls, Mass. Assoc. Memb. Am. Soc. C. E. T.S.

**Locke McIndoe Perkins, B.S.** App't'd Eng. of Maint. of Way of lines west of Paradise, Mont., June 15, 1911; jurisdiction of several thousand miles of railroad. Gen. Office, North Pac. Ry., Tacoma, Wash. Res. 2111 No. Washington Ave. Memb. Am. Ry. Eng. Assoc.

**Harold Edward Plumer, B.S.** Chief Eng. of branch office of Turner Construction Co. of New York, located in Buffalo, N. Y., 312 Prudential Bldg. T.S. Res. University Club, Buffalo, N. Y.

**John Endicott Porter, B.S.** Asst. Eng., office of Engr. of Structures, N. Y. C. & H. R. R. R. Co., New York City. Res. 4 Ashburton Place, Yonkers, N. Y. Assoc. Memb. Am. Soc. C. E. T. S.

**Harold Samuel Richmond, B.S.** (Norwich Univ., Vt.) Designer of structures, N. Y. C. & H. R. R. R. Co. under A. W. Carpenter, Eng. of Structures, Grand Cent. Terminal, New York City. Home: Hartsdale, N. Y., or Northfield, Vt. T.S.

**George Arthur Sampson, B.S.** Assistant to Robert Spurr Weston, Consulting Sanitary Engr., 14 Beacon St., Boston, Mass. Res. 695 Washington St., Brighton, Mass. Memb. Boston Soc. C. E. and New Eng. Water Works Assoc.

**Albert Smith, B.S.** Formerly with the U. S. Steel Co., Chicago. Prof. of Structural Engineering, Purdue University, Lafayette, Ind. Res. 1022 Seventh St., West. Assoc. Am. Soc. C. E. Memb. Indiana Eng. Soc. Memb. of Western Soc. Civ. Engrs. Fellow of Ind. Acad. of Science. T.S. Author of "Stresses in Simple Framed Structures."

**Fred Caswell Stanton, B.S.** Asst. Engr. on the Panama Canal, Cristobal, C. Z. Perm. Vineyard Haven, Mass. Assoc. Memb. Am. Soc. C. E. Memb. Internat'l Assoc. of Navigation Congresses. T.S. In charge of construction of Colon breakwaters, excavation at Mindi and surveys in Harbor and Channel section.

**Arthur Clarence Tozzer, B.S.** Superintendent of construction (reinforced concrete) for the Turner Construction Co., 11 Broadway, New York City. Perm. 62 Nahant St., Lynn, Mass.

Assoc. Memb. Am. Soc. Civ. Engrs. Memb. Engineers' Club, New York, and Nat'l Association of Cement Users. T.S. During past three years has had charge of construction of reinforced concrete buildings for the Bush Terminal Co., Brooklyn, N. Y.

**John Walker, B.S.** Lately Div. Eng. Mississippi Div. Ill. Cent. Ry. Oct., 1906-July, 1910, draftsman in Construction and Maint. of Way, Depts., U. P. R. R. Since that Asst. City Engr. of Cheyenne, Wyo. Res. 522 West 21 St. T.S. (1911)

**Arthur Ellsworth Winslow.** (C. E. Norwich Univ.) Professor of Civil Engineering, Norwich University, Northfield, Vt. Assoc. Memb. Am. Soc. C. E.

*Herbert Carroll Adams, B.S.* Checker for Am. Bridge Co., Elmira plant. Address: Elmira Heights, N. Y. (1909)

*Herman Keidel Clifford de Anguera, B.S.* Graduated from Rochester Theological Seminary in May, 1909. Religious work as director of Y. M. C. A., 10 Elm St., Worcester, Mass.

*Harry Wilfred Fitts.* Chief estimator and designer for the New England Structural Co., 110 State St., Boston, Mass. Res. 79 Pembroke St., Newton, Mass. Memb. Boston Soc. C. E. T.S.

*Arthur Weston Hare.* Since July 22. Estimator for Norcross Bros. Co., Contractors, Worcester, Mass. Res. North Grafton, Mass. T.S.

*Clarence Kent Hosford, B.S.* Lately Asst. Eng. U. S. Reclamation Service. With St. Croix Paper Co., Woodland, Me. Home address: North Thetford, Vt. Vt. Legislature, 1908.

*George Willard Newman, B.S.* Supt. for Cia Corbonifera "Agujita y Anexas", S. A., "Mineral de Lampacitos"; since Jan. 15, 1910. Baluarte, Coahuila, Mexico. Perm. 49 Union St., Keene, N. H.

*Thomas Richard Remsen, B.S.* Engineer for George F. Hardy, Mill Architect and Hydraulic Engr., 309 Broadway, New York. Res. 283 Jefferson Ave., Brooklyn, N. Y. Assoc. Memb. Am. Soc. C. E. T.S.

*Chester Arthur Studwell, B.S.* Since Dec., 1911, Village Engineer. Port Chester, N. Y. Res. 6 Monroe Place. Assoc. Memb. Am. Soc. C. E.; T.S.

## 1904

**Harold Dearborn Comstock, B.S.** Asst. Eng., U. S. Reclamation Service, in charge of construction and operation of the Pathfinder dam, Oct., 1910, to date; Alcove, Wyo. Perm. Chelsea, Vt. Assoc. Memb. Am. Soc. C. E. T.S.

**John William Mair.** Lately Engr. for Marc Eidlitz & Son, general contractors, New York City. Res. 100 W. Lincoln Ave., Mt. Vernon, N. Y. Assoc. Memb. Am. Soc. C. E. T.S. (1910)

**Harold Marston Morse, B.S.** Since Jan. 8, 1912, with International Paper Co., at Glens Falls, N. Y. Since March, Supt. Construction for Elkhart Hydraulic Co., Elkhart, Ind.; building dam and power house. Perm. Hanover, N. H.

**Fred Wheeler Osgood, B.S.** Asst Engr. for New York Board of Water Supply, plans, estimates and inspection of steel pipe and cut and coverwork for southern Aqued. Dept. Sect. No. 2, White Plains Div. Address: 126 S. Lexington Ave., White Plains, N. Y. Perm. Dunstable, Mass.

**Carroll Paul, B.S.** (Son of Prof. H. M. Paul, 1875.) Since Aug., 1907, Asst. Civ. Engr. U. S. N. After June 1, 1911, at Cavite, Luzon, P. I., in charge of construction and operation of power plants, etc.

**Frank Stewart Perham, B.S.** During the past five years chiefly in Florida as Eng. and Supt. of Construction for Bryan & Co., and others, in Jacksonville, for the U. S. Naval Station, Key West, Florida, etc. Address: P. O. Box 315. (1910)

**George Albert Reed, B.S.** Since April, 1907, City Engineer of Barre, Vt. Home address: 34 Orange St., Barre. Lately built a large storage reservoir for the city of Barre, and changed the course of the river by extensive excavation and retaining walls. Sec. of Vermont Soc. of Engrs.

**Howard Leon Ropes, B.S.** Since Feb. 1, 1912, Asst. Supervisor of track, N. Y. C. & H. R. R. R., St. Lawrence Div. Res. 154 Winslow St., Watertown, N. Y. T.S.

**Albert Henry Schilling, B.S.** Contracting Engr. for Berlin Construction Co., Berlin, Conn. Bridges and all steel structural work. Res. 29 Lincoln St., New Britain. Memb. Conn. Soc. C. E.

**Sherman Smith, B.S.** Asst. Eng. Grand Trunk Pac. Ry., Melville, Saskatchewan, Canada. In charge of all engineering work on a division 1,000 miles long. Assoc. Memb. Canad. Soc. C. E. Memb. Am. Ry. Engineering Assoc. (1911)

**\*\*Ralph Carroll Soper, A.B.** Lately Asst. Eng. U. S. R. S., Shoshone project. Drowned, June, 1910. (See Annual for 1910.)

**Carl Burpee Worthen, B.S.** Since Aug., 1908, Supt. of construction on Los Angeles aqueduct, Saugus Div., Section I. Ricardo, Calif. T.S. Perm. 103 Youle St., Melrose, Mass. (1910) Reported as engaged in Oahu, Hawaii, building aqueduct for irrigation.

**Harold Miner Hess, B.S.** Since Apr. 1, 1911, Chairman Missouri Actuarial Bureau (Fire Insurance), Pierce Bldg., St. Louis, Mo. Res. 1215 Amherst Place.

**Byron Wynne Matteson, B.S.** Since Oct., 1907, Asst. Eng. with City Engr. of Los Angeles, Cal. Res. Buckingham Apartments, Bixel and Ingraham Sts., Los Angeles Co., Cal. Memb. Engrs. & Architects Assoc. of So. Cal.

**Oscar Alexander Mechlin, B.S.** Degree of C. E. Geo. Washington Univ., 1906. Asst. Prof. of Civ. Eng. in that university from Sept., 1908. Member of firm Mechlin & Starr, Architectural Engrs., Wilkins Bldg. Res. 3203 R. St., Washington, D. C. Memb. Washington Soc. Engrs. Assoc. Memb. Am. Soc. C. E.

## 1905

**Owen Long Burdett, B.S.** Since July, 1909, Asst. Engr. in charge of Barge Canal contract, No. 19, 12 miles. New York State Engr's. Dept. Res. 48 North Ashland Ave., Buffalo, N. Y.; perm. Wakefield, Mass. T.S. (1910)

**Harold Newton Cross.** Formerly with U. S. Reclamation Service; also the Hudson Companies, Hoboken, N. J. Since June, 1912, in City Engr's. Office, Haverhill, Mass. Home address: Atkinson, N. H.

**\*\*Nelson Ford McClary, B.S.** Died in Ecuador, So. America, Nov., 1905. (See Annual for 1906.)

**Franklin Henry Stowell, B.S.** Lately Supt. of Construction for D. H. Burnham & Co. Now General Contractor, 1200 Tribune Bldg., Chicago, Ill. Memb. Western Soc. Engrs. T.S.

**Crosby Tappan.** Construction Eng., Cumberland Valley R. R. (branch of Penna. R. R.). Has built eighteen miles of new double track on grade revision, concrete culverts, up to 20 ft. span, highway arches, a 100 ft. reinforced concrete arch; now building ten 60 ft. arches on five miles new line. (See *Eng. News*, April 8, 1909.) Address: General office of this road, or Glen Apartments, Chambersburg, Pa. Memb. Engrs. Soc. of Penna.

**Morton Owen Withey, B.S.** Asst. Prof. in Rational and Applied Mechanics, and in testing laboratory, University of Wisconsin, Madison, Wis. Res. 1633 Madison St. Memb. Am. Soc. Testing Materials, Eng. Soc. of Wisconsin, and Soc. for Prom. Eng. Educ. T.S. Author of bulletins and papers on tests of reinforced concrete beams and columns. (See *Eng. Record* for July, 1909, and July, 1910.)

*John Francis Doonan, B.S.* Since Oct., 1908, with N. Y., N. H. & H. R. R. Co., on surveys and estimates for grade crossing changes, line revision, etc. Res. Young's Hotel, New Milford, Conn. Perm. Greenville, N. H. T.S.

*John Hibbard Fellows, B.S.* Graduate in mechanical engineering, Mass. Inst. of Technology, B.S. degree, 1906. Manager of the Niles plant of the Stanley Works, Niles, Ohio. Perm. Tilton, N. H.

*George Alexander Lewis.* Served on the engineering force of the Isthmian Canal Comm., August, 1904, to April, 1905. Perm. Hingham, Mass. Supt. Construction on the R. T. Crane Estate, Ipswich, Mass., since April, 1911. Res. 8 Fruit St. (1911)

*Wayne Arthur Perkins, B.S.* Asst. Engr., U. S. Recl. Service. Since March, 1911, in charge of design and construction of Two Medicine dam, costing \$100,000; address: Midvale, Mont. Home: Helena, Mont., care U. S. R. S.

## 1906

**James Seth Adams, B.S.** Before April, 1911, construction engineer for the Western Electric Co. Since then general contractor for building construction, 901 Plymouth Building, Chicago, Ill. Res. 112 South East Ave., Oak Park, Ill. (1911)

**Walter Abbott Conley, B.S.** Designer and estimator, bridge dept., Am. Bridge Co., New York office, 30 Church St., New York City. Perm. 67 Spruce St., Portland, Me. T.S.

**Charles Francis Goodrich, B.S.** Designer and estimator, American Bridge Co., bridge dept., New York office, since June, 1910. Address: 915 Carteret Ave., Trenton, N. J., or 10 Larchmont St., Dorchester, Mass. T.S.

**Ralph Leonard Libby, B.S.** Engineer for Corrugated Bar Co., care Peden Iron and Steel Co., Houston, Texas. Perm. 235 Washington St., Dover, N. H.

**Hope Richard Messer, B.S.** Since May 1, 1910, Sanitary Engineer, Dept. of Health, Virginia; 1110 Capitol St., Richmond, Va. Perm. Claremont, N. H. Assoc. Memb. Am. Soc. C. E. Memb. Am. Water Works Assoc. and Am. Public Health Assoc.

**Harrie Langdon Muchemore, B.S.** Lately Prin. Asst. Civilian Engr. on construction of dry-dock No. 4, New York Navy Yard. Since Sept. 15, 1911, Expert aid, Dept. Public Works, Puget Sound Navy Yard, Box 797, Bremerton, Wash. Contributed article to *Eng. Record*, June 22, 1912, on "Piers Cast as Concrete Shells and Filled in Place," describing the work done by him. Perm. 263 Cass St., Portsmouth, N. H. Junior Am. Soc. C. E. T.S.

**Harrison George Roby, B.S.** Asst. Engr. to Prof. D. W. Mead, Consulting Engr., 530 State St., Madison, Wis., and Nat. Bank Bldg., Chicago, Ill. Res. Eng. in charge of construction of 5000 h. p. hydro-elect. plant, on the Menominee River, near Iron Mt., Mich. Perm. Whitewater, Wis. After Dec. 1 in Madison.

**William Thomas Shaw, B.S.** Asst. Engr., Boston Elev. R. R. on new Cambridge subway, 2 Central Sq., Cambridge, Mass. Perm. Middleboro, Mass. Since Aug., 1911, an invalid. Writes from Hill, N. H.: "gaining slowly." Assoc. Memb. Am. Soc. C. E., Memb. Boston Soc. C. E. T.S.

**Leon Burdett Smith, B.S.** Asst. Engr. Division of Eng. Investigation, Bureau of Water, Dept. of Public Works, Pittsburg, Pa. Res. 5447 Stanton Ave. Home address: Derry, N. H. T.S.

**Myron Ellis Witham, B.S.** Lately in charge of construction of the Standley Lake dam, which will have a total of five million cub. yds. Now Bull & Witham, Cons. Engrs., 1015 Foster Bldg., Denver, Col. Assoc. Memb. Am. Soc. C. E. Consult. Engr for several power companies, the Paradox Valley R. R., etc.

**Guy Eric Woodward, B.S.** County Supt. of Bridges. City Engr. of Redmond. In private practice. P. O. Box No. 260, Red-

mond, Ore. Has four steel bridges in construction and has charge of engineering and designing of Redmond water system.

*Chester Philbrook Smith, B.S.* Resigned on account of ill health, in the midst of his second year. Draftsman in office of Chief Draftsman N. Y. C. & H. R. R. R. since Apr. 12, 1912. 77 Buena Vista Ave., Yonkers, N. Y., or 70 East 45th St., Room 5140, New York City. Perm. Norridgewock, Me.

*Frank Nelson Tinker, B.S.* (Norwich Univ.) Student in residence, THAYER SCHOOL, second year course. Assoc. Prof. of Civ. Eng., Norwich Univ., Northfield, Vt., 1907-08. A satisfactory thesis not yet presented. Address unknown.

*George Ralph Colson, B.S.* Asst. Engr. So. Shore Traction Co., Babylon, Long Id., N. Y. Perm. North Billerica, Mass. T.S. (1910)

*Harold Morton Haskell, B.S.* Assistant to the City Engineer, Manchester. Address: 66 Appleton St., Manchester, N. H.

*Fletcher Ames Hatch, B.S.* With United Fruit Co. Address: Santa Marta, Colombia, South America. Perm. care Mrs. A. C. H. Stearns, 66 Glover Ave., Atlantic, Mass. T.S.

*Walter Earle Hawley, B.S.* Designer and estimator for Post & McCord, 44 East 23d St., New York City. Res. 1948 Sixty-first St., Brooklyn, N. Y. Perm. Norwich, Vt.

*Harold D. King, B.S.* Lately Assistant U. S. Coast and Geod. Survey, in charge of primary triangulation related to the 98th Meridian and on trancontinental precise levelling, and main scheme of triangulation, Philippine Ids.; also engaged on determination of gravity throughout U. S. Transferred to Bureau of Lighthouses. May, 1911; since April 15, 1912, Inspector 6th Lighthouse District, Charleston, S. C. Memb. Washington Soc. Engrs.

## 1907

*Augustine Haines Ayres, B.S.* Since Dec., 1912, principal Asst. Engr. for Southern Alberta Land Co., Ltd., Medicine Hat, Alberta, Canada. Perm. No. 8 State St., Concord, N. H. Assoc. Memb. Am. Soc. C. E. In charge of construction and location of 2d div. of the irrigation system, requiring 3,000,000 cu. yds. of excavation, 3500 cu. yds. concrete in drops, spillways, headgates, etc., and 6500 feet of 8 ft. wood syphon across Bow river, which has a low water flow of 2000 sec. ft. Water to be turned into system



March, 1913. See article by him in *Engineering Contracting*, Apr. 10, 1912.

**Charles Luther Bourne, B.S.** Asst. to the City Engr. of Newton, Mass. Res. 120 Woodbine St., Auburndale, Mass. Since Nov., 1908, with the H. P. Converse Co., Boston (88 Broad St.), reinforced concrete construction, etc. (1909)

**Neil Stanley Buckbee, B.S.** Since Mar. 1, 1912, engr. for Corrugated Bar Co., Buffalo, N. Y. Res. 535 Woodlawn Ave., Buffalo, N. Y.

**Chester McKenzie Everett, B.S.** Draftsman and estimator, in the office of Hazen & Whipple, Consulting Engrs., 103 Park Ave., New York City. Res. 159 West 131 St. Perm. Champlain, N. Y.

**William Henry Fox, B.S.** With Commissioners of Sewerage, Louisville, Ky., drafting and designing. Room 605, Equitable Building. Perm. 80 Pearl St., Clinton, Mass.

**\*\*Harry Allen McMore, B.S.** Lately with the General Fireproofing Co. Died Oct. 20, 1909. (See Annual for 1910.)

**Vicente Molina, B.S.** In practice as surveyor and Civil Engr., Merida, Yucatan; Calle 63, No. 469. Since Feb., 1909, Chief Engr. United Rys. of Yucatan, system of 550 miles; reconstructed old lines; prepared plans for and constructed two new lines. Assoc. Memb. Am. Soc. C. E.

**Fred Foster Parker, B.S.** Lately Asst. Engr. and inspector to the Engr. and Supt. of Bldgs., Dartmouth College. Since Jan. 1, 1911, Asst. Supt. Parker & Young Co., Lisbon, N. H. (1911)

**Clarence Irving Peckham, B.S.** (Brown Univ.) Asst. Engr. for Public Service Comm., New York City, in 1908 and 1909. Now Asst. Eng. for the N. Y. State Highway Comm. Perm. 30 Gurney St., East Providence, R. I.

**Verney Warren Russell, B.S.** U. S. Reclamation Service; since Sept., 1910, Asst. Eng. in charge of operation and maintenance of the Shoshone Dam and reservoir. Res. Cody, Wyoming. Perm. Norwich, Vt. T.S.

**Watson Burchard Smith, B.S.** Asst. Eng. Union Pac. Ry., on 2d track from Julesburg to Pine Bluffs, Neb. Box 143, Potter, Neb. Perm. 140 North 41st St., Omaha, Neb.

**Carlton Manson Soule, B.S.** Estimator and designer in the office of Eng. of Bridges, B. & O. R. R., Baltimore, Md., 3215 Westwood Ave., Walbrook, Baltimore, Md. Perm. 70 Putnam St., E. Weymouth, Mass.

*Herbert Leslie Boynton, B.S.* With Chi. & N. W. Ry., rodman, topographer, and instrumentman; since Oct., 1908, on construction of new terminal, Chicago. Res. 608 Church St., Evanston, Ill.; perm. 16 Sixth Ave., Haverhill, Mass. Junior Memb. Western Soc. C. E. (1910)

*Joseph Theodore Chase, B.S.* Mgr. Roanoke Rapids Power Co., Box H, Roanoke Rapids, N. C.; perm. 151 Beech St., Holyoke, Mass.

*Henry George Porter, B.S.* With Hazen and Whipple, 103 Park Ave., New York City. Since May 1, 1912, Res. Engr. construction of additional filters at Yonkers, N. Y. Res. 175 Warburton Ave., Yonkers, N. Y. Home, Bartlett, N. H. Assoc. Memb. Am. Soc. C. E. T.S.

*Raymond Collins Wood, B.S.* Draftsman, Murphy Varnish Co., Newark, N. J. Res. 22½ Chestnut St. Home address: 11 Summit Ave., Haverhill, Mass.

#### 1908

**Samuel Colcord Bartlett, B.A.** Lately rodman, draftsman, and instrumentman, Grand Trunk Pacific R. R., and other rys. in Brit. Col. and Wash. Also as officer on U. S. C. & Geod. Survey Str. Yukon in Cook's Inlet, Alaska. Perm. Hanover, N. H. T.S. Since March, 1911, Supt. of construction for Hastings Pavement Co., 25 Broad St., New York City.

**Ray Wilbur Brown, B.S.** Home address: 268 Locust St., Fall River, Mass. Transitman for Arthur T. Safford, Civ. Eng. on protection of water supply at Fall River, Mass. (1910)

**Nathaniel Francis Davis, B.S.** Assistant Manager for the Davis Paper Co., Contoocook, N. H. Res. Contoocook. (1911)

**John H. Dunlap, B.A.** Assistant Prof. of Hydraulics and Sanitary Engineering, State Univ. of Iowa, Iowa City, Iowa, since Sept., 1911. Res. 311 Brown St., Iowa City; perm. Bennington, N. H. T.S. Iowa Engr. Soc. and Ill. Water Supply Assn.

**Arthur John Ela, B.S.** Asst. U. S. Coast and Geod. Survey, until 1910. Home address: 96 Stafford St., Worcester, Mass. T.S. Lately in employ of Stone & Webster, Civ. Engrs. and Contractors, Seattle, Wash. Asst. Superintendent, U. S. Lighthouse Service, with headquarters at Ketchikan, Alaska (extreme south-eastern part).

**Samuel Francis Garvin, B.S.** 109 So. 4th Ave., Mt. Vernon, N. Y. Asst. Engr. N. Y., Westchester & Boston Ry. Co. Perm. Sanbornville, N. H. (1911)

**Harry Matt Gray, B.S.** With Hazen & Whipple, Cons. Engrs., 103 Park Ave., New York City. April, 1911, to June, 1912, res. engr. on construction of Ogdensburg filtration plant. Now res. engr. on construction of the extension of the Hudson River State Hospital Filtration plant at Poughkeepsie, N. Y.

**Fred Bacon Greenleaf, B.S.** Member of firm J. A. Greenleaf & Sons Co., Inc., Contractors and Builders, Auburn, Me. Res. 121 Spring St. In the employ of the International Paper Co. at Wilder, Vt., Supt. of construction.

**Reuben Hayes, B.S.** Lately with Post & McCord, New York City. Perm. Dover, N. H., R. F. D. Madbury, N. H. Since March, 1911, Asst. Engr., office of Ch. Eng. M. W., Sou. Ry. Co., 1300 Pennsylvania Ave., Washington, D. C.

**Roy Mullins, B.S.** Since Feb., 1912, Res. Eng., Chi. & Erie Ry., Ohio City, Ohio. 13 miles 2d track. Perm. Baldwinsville, Mass.

**Harold Parker, B.S.** Supt. of Hospital Const. for United Fruit Co. in Guatemala since April 15. Care United Fruit Co., Puerto Barrios, Guatemala. Perm. 58 Middle St., Portsmouth, N. H. Memb. Nat. Assoc. Cement Users.

**Russell Hastings Peck, B.S.** Since Oct., 1910, Engr. of Palmer Land & Water Co., Palmerton, Pa. Perm. Mt. Vernon, N. H. T.S.

**Henry Tyler Pierce.** Asst. Engr. Puerto Rico Irrigation Service, since Oct., 1910, Juana Diaz, P. R.; res. engr. on the Coamo dam. (1911)

**Frederick William Welch, B.S.** Private practice, Spirit Lake, Idaho; perm. East Lempster, N. H. Instructor in THAYER SCHOOL OF CIVIL ENG., July, 1908, to Sept., 1909, and in State University of Iowa, 1909-1910. T.S.

**Herbert Davis Hinman, B.S.** Under the Panama Canal Comm., since July, 1907. Lately Supt. of construction Pedro Miguel locks; since Aug., 1912, engr. in charge of construction of the Pacific Terminals. Corozal, C. Z., Panama. Perm. Groveton, N. H.

**William Rice Kimball, B.S.** Since Feb. 1, 1908, with Jos. T. Ryerson & Son, eng. dept., Chicago, Ill. Res. 454 No. Grove Ave.,

Oak Park, Ill. T.S. During 1910, in charge of erection of a mile and a half of pipe, 84 inches diam., for Michoacan Power Co., Villa Senor, Mexico, and in 1912 in charge of erection of two similar pipe lines in Utah.

*Merton Clark Knapp, B.S.* Asst. Eng. U. S. Recl. Service, Sun River project, Fort Shaw, Montana. Perm. 23 N. Lincoln St., Keene, N. H.

*Nathaniel Hobbs Knight, B.S.* Member of the firm, Knight & Merrill, The Ontio, Ogonquit, Me., or North Berwick, Me. 1911-13 Asst. and Instructor in Physics, Tufts College. Home address: 60 Pearson Rd., W. Somerville, Mass.

*Clarence Erwin Langley, B.S.* From Sept., 1907, under Isthmian Canal Comm., and, since May 1, 1912, supervisor of construction in charge of masonry and excavation, Gatun Locks. Address: Gatun, Canal Zone, Panama. Assoc. Memb. Am. Soc. C. E.

*Charles Reed Main, B.S.* Graduate, 1909, in mech. eng., Mass. Inst. of Technology. With Chas. T. Main, Mill Engr., 201 Devonshire St., Boston, Mass. Res. 14 Herrick St., Winchester, Mass. For a few months care Stone & Webster Engr. Cor., Fresno, Cal. Memb. Boston Soc. C. E.

*\*\*Robert Houghton Pearson, B.S.* Lately under the Isth. Canal Comm., as general foreman of concrete placing on the Gatun Locks, Gatun, C. Z. Died Jan. 4, 1911. (See Annual for 1911.)

*William Maddock Silleck.* With George H. Fuller Co., Bldg. Construction, 111 Broadway, New York City. Since Aug., 1910, Supt., in charge of Adams Express Bldg., and Aeolian Hall Bldg. T.S.

#### 1909

**George Fredson Baine, B.S.** Jan. 1, 1911, to Sept. 1, 1911, bridge drafting in Chief Engrs. office, Mo. Pac. Ry., St. Louis. Since Sept. 1, 1911, at Atchison, Kans., as Asst. Engr. on No. Kans. Division. Address Asst. Engr., Mo. Pac. Ry., Atchison, Kans. Responsible for maintenance of 480 miles of main line and branches. Perm. Berlin, Mass. T.S.

**Arthur Bradley Barnes, B.A.** Master Mechanic, Barnaby Mfg. Co., Fall River, Mass. Memb. Boston Soc. of Civ. Engrs.

**Richard Stevens Danforth, B.S.** With W. S. Turner & Co., Cons. Engrs., Portland, Ore., until last May; with L. F. Gerdetz

on dam and concrete canal to Aug. 20. Since then contract work, 1008 Spaulding Bldg., Portland, Ore. Perm. 29 Pleasant St., Gardiner, Me.

**\*\*Richard Hazen, B.A.** Lately with Hazen & Whipple, Consulting Civil Engrs., 103 Park Ave., New York City. Died Aug. 13, 1911. (See Annual for 1911.)

**Ralph Gardner Knight, B.S.** Instructor in civil engineering, Pennsylvania State College, since Oct., 1909. State College, Pa.; perm. Randolph, Mass. Engineering work about the college and grounds, structures and improvements. (1911)

**Ernest Avery Lincoln, B.S.** Left the U. S. Geol. Survey in May, 1910. Since with San Diego Consolidated Gas & Elect. Co., on construction of power plant and underground conduit, under H. M. Byllesby & Co., Engrs., Chicago. Res. 1652 First St., San Diego, Cal. Perm. 457 June St., Fall River, Mass. T.S. (1911)

**Raymond Robb Marsden, B.S.** Instructor in THAYER SCHOOL OF CIVIL ENGINEERING, year 1909-10. With H. S. Ferguson (T. S. C. E., 1891), Civil and Hydraulic Engr., 200 Fifth Ave., New York City. Perm. 26 Dudley Ave., Utica, N. Y. T.S. June, 1912, Res. Engr. on construction of new pulp mill, Titydale, Vt.

**Frederick Herman Munkelt, B.S.** Asst. Eng. Am. Bridge Co., 30 Church St., New York City. Perm. 668 E. 13th St., Brooklyn, N. Y. Jun. Am. Soc. C. E. T.S.

**Earl Thomas Richards, B.S.** With the Benj. F. Smith Construction Co., mill contractors, as Supt. of construction, including reinforced concrete; 22 Mason St., Pawtucket, R. I. T.S.

**Charles Potter Richardson, B.S.** Since Aug. 8, 1911, chief of party on work of track elevation, Rock Island R. R. lines in Chicago, Ill. Expected to require eight years. Address: 235 W. 61st Place, Chicago, or 57 Silver St., Dover, N. H. T.S.

**Harold Ordway Rugg, B.S.** Sept., 1909, to June, 1911, instructor, dept. of civil engineering, James Millikin Univ., Decatur, Ill. Instructor general engineering drawing, Univ. of Illinois, Engineering bldg., Urbana, Ill. Perm. 142 Day St., Fitchburg, Mass. Memb. Soc. Prom. Eng. Educ., and Ill. Soc. Eng. and Surveyors.

**Sidney Lee Ruggles, B.A.** Junior Topographer U. S. Geol. Surv., 1909. Instructor in Surveying Pennsylvania State College, 1909-10. Instructor in Surveying and Graphics, THAYER SCHOOL OF CIV. ENG., Sept., 1910, to date. Res. 6 Sargent St., Hanover, N. H. T. S.

**Park Washburn Stickney, B.S.** Asst. Engr., North. Pac. Ry. Since Dec., 1911, Res. Engr. on reconstruction of Grassy Point Bridge, Duluth, Minn. Res. 901 1st St., No. Fargo, North Dakota. T. S.

**James Hammond Stone, B.S.** City Engr. and Supt. of Streets, Franklin, N. H. Previously in charge of various construction in Cuba and Santo Domingo. Perm. R. F. D. 2, Concord, N. H. Assoc. Memb. Am. Soc. C. E. T.S. Memb. Mass. Highway Ass'n.

**Philip Laforrest Thompson, B.S.** Supt. in charge of construction, etc., Hastings Pavement Co., 25 Broad St., New York City. Res. 78 Van Sice Ave., Yonkers, N. Y. Perm. St. Johnsbury, Vt. T.S.

**Frederick Sampson Weston, B.S.** During three intermediate years Asst. Engr. for J. G. White & Co., of New York, on construction of Philippine railroads and bridges, on Negros and Cebu. Since Mar., 1910, Terminal Engr. Madeira-Mamore Ry., Porto Velho de Santo Antonio, Brazil. Address: Caixa 304 Manaos, care E. de F. M—M. Perm. Middleboro, Mass. Assoc. Memb. Am. Soc. C. E. T.S.

**Willard Choate Winkley, B.S.** Draftsman, Lockwood, Green & Co., Architectural Engrs., 93 Federal St., Boston, Mass. Since July 1, 1912, in charge of reinforced concrete department at the Chicago office. Address: First National Bank Bldg., Chicago, Ill., care Lockwood, Green & Co. Perm. 7 W. Concord St., Dover, N. H. T.S.

*Frederick Kent English, B.S.* Home address: 51 Main St., Wareham, Mass. Since June 1, 1912, chief of plane table party for Directors of the port of Boston, on railroad location. Res. 290 Columbus Ave., Boston, Mass.

*Ralph William Hazen, B.S.* Junior Engr. U. S. Rec. Ser., Browning, Mont. Formerly Asst. Engr. in the Philippine Service, Manila. Perm. Whitefield, N. H. T.S. Jun. A. S. C. E.

*Roger Frank Hill, B.S.* Graduated from Mass. Inst. Tech., 1910. Eng. for the A. J. Smith Construction Co. of Detroit, Mich.; 18 Campan Bldg. Memb. Mech. Eng. Soc. M. I. T. Perm. Tilton, N. H.

*Charles Arthur Luck.* General Manager of the Asphalt Block Pavement Co., 840 Ohio Bldg., Toledo, Ohio. Res. 2273 Lawrence Ave. Memb. Toledo Society of Engrs and Ohio Engineering Soc., and T.S.

*Harold Arthur Morey, B.S.* With the International Paper Co., Glens Falls, N. Y. Res. So. Glens Falls.

*Walter Clarence Rich, B.S.* Sept., 1910, to Sept., 1912. Asst. Engr. in charge of construction of highways, State of New York. Since Sept., 1912, Supt. for Serviss & Mackay, Youngstown, N. Y., on highway construction. Address: 844 Potomac Ave., Buffalo, N. Y.

*Carl Wilbur Ross, B.A.* Chief draftsman, Engr's. office, Water Dept., City Hall, Portland, Oregon.

*Alva Bruce Rutherford, B.S.* Supt. for the Asphalt Block Pavement Co., Toledo, Ohio, 845 Ohio Bldg. Perm. Waddington, N. Y. T.S. Construction of pavements throughout Ohio. (1910)

*Frederick Edw. Schilling, B.S.* Supt. of construction for Turner Construction Co., 312 Prudential Bldg., Buffalo, N. Y. During last year in charge of bldgs. for Johnson & Murray, Utica, N. Y.; Barnet Leather Co., Little Falls, N. Y.; and Carborundum Co., Niagara Falls, N. Y. Perm. 68 Glen St., New Britain, Conn. T.S.

## 1910

**Benjamin Ayer, B.S.** Supt. of the Monatiquot Rubber Works Co., 15 Holbrook Ave., So. Braintree, Mass. Perm. 135 School St., Belmont, Mass. T.S.

**Delmont Rockwood Bradley, B.S.** With Geo. F. Hardy, Mill Engr. and Architect, 309 Broadway, New York City. Engr. in charge of construction of pulp mill, Jonquien, P. Q., Canada. Perm. 163 Washington St., Gloucester, Mass. T.S. (1911)

**Arthur Leet Buxton, B.S.** June 1, 1911, to Apr. 1, 1912, Engr. for Westinghouse, Church, Kerr & Co., 10 Bridge St., New York City. Round-house terminals at Summit, Ohio, and Boston, Ind. April 1, 1912, Engr. for Thompson-Starrett Co., on new Union Central Life Bldg., Cincinnati, O. Perm. 108 Dartmouth St., Springfield, Mass. Res. 518 E. Fourth St., Cincinnati, O. T.S.

**Frank Gordon Cook, B.S.** Made Asst. Engr. in charge of Dakota Div. 700 miles of main track and branch lines. Address: Eng. Dept., N. P. Ry., Jamestown, No. Dak. Perm. 110 State St., Concord, N. H. T.S.

**Oliver W. Cushman, B.S.** Asst. to Engr., Westinghouse, Church, Kerr & Co., 10 Bridge St., New York City. Res. 311 Adelphi St., Brooklyn; perm. 495 Manchester St., Manchester, N. H. (1911)

**Benjamin Harmon Dudley, B.S.** Since Oct., 1910, instrumentman, N. Y. C. & H. R. R. Co. Res. 220 No. James St., Rome, N. Y. Perm. 51 Park St., Malone, N. Y. T.S.

**Robert Rutledge Gould, B.S.** Checker, Am. Bridge Co. of New York, Brooklyn plant; since March, in erecting dept., assisting in design of travellers, docks, etc., for the Hell Gate Bridge. Res. 1941 Benedict Ave., Bronx, New York City; perm. Portland, Conn. T.S.

**Winthrop Lamson Smith, B.S.** Since Jan. 1, 1912, Sales Agent for Penn. Furniture Mfg. Co., Montgomery, Pa. Address: 1612 Summer St., Philadelphia, Pa. Perm. 750a, Brooklyn Ave., Brooklyn, N. Y.

**Harry Abbott Ward, B.S.** Asst. in office of Turner Construction Co., of New York; 312 Prudential Bldg., Buffalo, N. Y.; address, 150 Hodge Ave., Buffalo, N. Y. Perm. 25 Arlington St., Lynn, Mass.

*Albert James Wheeldon, B.S.* Diploma withheld until completion of work in hydraulics. In employ of U. S. Steel Corporation, Worcester plant. No report since 1910.

*Frank Stearns Austin, B.S.* Asst. Supervisor of track Bost. & Albany R. R., Granite Bldg., Springfield, Msas.; perm. 38 Sanderson Ave., Lynn, Mass.

*John Cleveland Beebe, B.S.* Graduate in Hydraulics, June, 1910, from Univ. of Wisconsin, C.E. degree. Oct., 1911, to July 1, 1912, in charge of stream gauging, Dist. No. 1, U. S. Forest Service. Since July 20, Asst. Engr. Prospect Creek Power Development, Thompson, Mont., P. O. Box 56. Perm. care S. D. Beebe, Hampden, Mass. Junior Am. Soc. C. E. Memb. Mont. Soc. Engrs.

*Ralph Byron Clement, B.S.* Asst. Engr., Central N. H. Power Co., Concord, N. H. Investigation of Smith River Valley. Perm. 12 George St., Chelsea, Mass.

*Fred Ernest Hanson, B.A.* Lately Asst. Eng. on construction of a 28 mile extension of Bangor & Aroostook Ry. Now with Real Estate Dept., N. Y., N. H. & H. R. R. Co., 334 Broad St., Providence, R. I. Res. Lee, Mass.

*John Edw. Hansbury, B.S.* No report since May, 1909, when he was track apprentice on Mo. Pac. Ry.

*Arthur Lowell Herrick, B.S.* Graduate in Hydraulics from Univ. of Wisconsin, with degree of C.E., in June, 1910. In charge



of the hydraulic work under the Mech. Engr. Dept., at Columbia University, New York City. Perm. 10 Forest St., Gloucester, Mass.

*Hazen Kimball Hibbard, B.S.* Since Oct. 1, 1909, instrument-man on the Atch., Top. & St. Fe R. R., care Div. Eng., Chanute, Kas. Res. 902 East 3d St., Cherryvale, Kas. (1910)

*Fred Gray Leary (B.A. Colgate Univ.), B.S.* Since April, 1910, in the Water Dept., City Hall, Portland, Ore. In charge of 14 miles of water-main construction from Mt. Hood to the city. Res. 589 East Madison St. Perm. Hamilton, N. Y. (1911)

*Dwight Thornton Reed, 2 Lovell St., Portsmouth, N. H.* Reports from 402 Rondo St., St., Paul, Minn.

*Harold Cushing Whitmore, B.S.* April, 1912, to July, 1912, chief of party on the Farnham dam, New Lenox, Mass.; since then Asst. Engr., Somerset Dam, Power Construction Co., Mountain Mills, Vt. Res. 91 Baker St., Lynn, Mass. Jun. Am. Soc. C. E.

#### 1911

**John Anthony Cassidy, B.S.** Since Jan., 1912, with the Singer Mfg. Co., Elizabethport, N. J. Res. 931 Gates Ave., Brooklyn, N. Y. T.S.

**John Warren Childs, A.B.** Surveyman, Sun River Project, Fort Shaw, Mont. Address: U. S. Rec. Ser., Fort Shaw, Mont. Res. at Henniker, N. H.

**Harry Burns Dore, B.S.** Surveyman, U. S. Reclamation Service, Sun River project, Fort Shaw, Mont., during 1911. Resigned, and reported to be in San Francisco. Perm. 53 Richards Ave., Portsmouth, N. H.

**Peter Staub Dow.** Assistant to Professor Hazen in the dept. of engineering and graphics, Dartmouth College, Hanover, N. H. Perm. 416 Second St., Knoxville, Tenn.

**Whitney Haskins Eastman, B.S.** Since Sept., 1911, res. engr. on construction, and now Asst. Supt. of Linseed Oil M'fg. plant for the Midland Linseed Oil Products Co., Edgewater, N. J. Perm. Fort Ann, N. Y. T.S.

**Fred Sumner Hanson, Jr., B.S.** Until Aug. 15, Field Asst. for Bureau of Engineering Statistics under Prof. Geo. F. Swain. Perm. 93 Myrtle St., Somerville, Mass. Letter dated Mar. 1, 1912, from camp on the watershed of Sixaola river north of Chumuri, Costa Rica, on the boundary survey, Panama-Costa Rica.

**Henry Roger Harrison, B.S.** Engineering work, Denver, Colo. Res. 1457 Vine St. (1910)

**Edward Wyman Higbee, B.S.** Reported to be with American Tel. & Tel. Co., Engr. Dept., New York. Perm. 4 Rhode Island Ave., Newport, R. I.

**James Warren Ingalls, B.S.** Instrumentman for Southern New England R. R. on the Brimfield Residency, Brimfield, Mass. Perm. 76 Baker St., Lynn, Mass.

**Edson Warren Keith, B.S.** Since Oct. 14, 1912, Instrumentman for City Engr., Manchester, N. H. Address: 160 Concord St., Manchester, N. H. Res. West Wareham, Mass.

**Walter Harrison Krafft.** With the Public Service Comm. on 4th Ave. Subway as Junior Engr., 107 Lefferts Place, Brooklyn, N. Y. Res. 1070 Bergen St. (1911)

**Ralph Wilbur Noyes, B.S.** With the Stone & Webster En'g Corporation as inspector, Keokuk, Iowa. Since Aug. 1, in charge of tower erecting on one division of Transmission Line for Mississippi River Power Co. Perm. Bethlehem, N. H. T.S.

**Robert Emerson Parker, B.S.** Junior engr. with the Aberthaw Construction Co., 8 Beacon St., Boston, Mass. Perm. 55 Walnut St., Reading, Mass. T.S. Memb. Boston Soc. of C. E.

**Earle Howard Pierce, B.S.** Summer of 1911 with the Hastings Pavement Co. of New York. Incapacitated by surgical operation and slow recovery. Home, 575 Watertown St., Newtonville, Mass.

**James Marsh Porter, B.S.** General Manager for Northwestern Metals Co., Helena, Mont. Perm. 149 Hawthorne St., Malden, Mass.

**Maurice Readey, B.S.** Since June 24, 1912, Estimating,—Simmons Pipe Bending Works, 591 Ridge St., Newark, N. J. Perm. 2288 Elm St., Manchester, N. H.

**Fletcher Rogers, B.S.** Supt. of Construction for the Hastings Pavement Co., 25 Broad St., New York City; executing contracts in vicinity of New York and in Michigan. Perm. Demarest, N. J. T.S.

**Ralph Arthur Sherwin, B.S.** With the Aberthaw Construction Co., at home office, 8 Beacon St., Boston, Mass. Perm. 16 Summit St., Orange, Mass. T.S.

**Edgar Mills Steward, B.S.** Supt. of Construction for the Asphalt Block Pavement Co., 842 Ohio Bldg., Toledo, Ohio. Perm. 517 East 60th St., Chicago, Ill.

**Harry Artemas Wells, B.S.** With Geo. F. Hardy (Dart. Coll., C. S. D., '88), Hydraulic and Mill Engr. and Architect, 309 Broadway, New York City. Surveys in Newfoundland in Oct., 1911. Engr. at Thames River Specialties Co., Montville, Conn.; later at Union Bag and Paper Co., Hudson Falls, N. Y. Perm. 13 Redington St., Littleton, N. H. T.S.

**Abiel Wayland Wood, B.A.** With Hazen & Whipple, Consulting Engrs., 103 Park Ave., New York City. Perm. 9 Shattuck St., Worcester, Mass.

*Geo. E. Chamberlin, B.S.* Failed to qualify for graduation at close of second year. Reported to be with the Stone & Webster Corporation, 11 Hancock St., Boston, Mass.

*Joseph Matthews Smyth.* Failed to qualify for graduation at close of second year. About a year with the U. S. Reclamation Service in Montana. After July 1, asst. to Porter in works of the Northwestern Metals Co., Helena.

*James Joseph Kerley, B.S.* Instrumentman for H. M. Byllesby & Co., contractors and engrs., Chicago, on the New River power plant near Grayson, Va.; four concrete dams and transmission line. Perm. 115 Ballston Ave., Ballston Spa, N. Y.

*Joseph Ritchie Kinney, B.S.* Supt. of Construction for the Harlem Contracting Co., 2 Rector St., New York City; asphalt block pavements. Perm. 187 Lincoln St., Winthrop, Mass.

*Guy Maxwell Perry, B.S.* Assistant and Supt. on Construction Work for the Elliot C. Brown Co. of New York City, 27 William St. Address: Oyster Bay, L. I., care Elliot C. Brown Co. Perm. Box 586, Worcester, Mass.

*Harold Wesley Robinson, B.S.* Instructor in the Mid-Pacific or Mills Institute, Honolulu, T. H. Perm. R. F. D. 2, Warren, Vt.

*Lewis Hamilton Sisson, B.S.* The year 1910-11 as senior in Dartmouth College. With the Racquette River Paper Co.—duties in connection with the Sulphite plant, large up-to-date mills. Res. 53 Elm St., Potsdam, N. Y.

*Perley Nelson Storer, B.S.* Asst. Engr. on the N. Y., Westchester & Boston R. R., on construction. Res. 149 South 5th Ave., Mt. Vernon, N. Y. Perm. 148 State St., Portsmouth, N. H. (1911)

1912

**Sydney Clifford Beane, B.S.** With Aberthaw Construction Co., 8 Beacon St., Boston, Mass. Res. 19 Pelham St., Methuen, Mass. T.S.

**John Jackson Boynton, B.S.** Foreman for the Harlem Contracting Co., 2 Rector St., New York City. Res. 762 West End Ave. T.S.

**Clarence Eugene Ellsworth, B.S.** During three intermediate years and now, Asst. Engr. in the Water Resources Dept. of the U. S. Geol. Survey in Alaska. Address the office, Washington, D. C. Home: Wentworth, N. H. Joint author of reports on mineral resources and stream flow of the Yukon-Tanana region, 1908 to 1910. Formerly of the class of 1908.

**Harold Lewis English, B.S.** Draftsman and designer Concrete Dept., Del., Lack. & W. R. R., Hoboken, N. J. Res. 136 West 82d St., New York City. Perm. Lisbon, N. H.

**Willard Merrill Gooding, B.S.** With R. S. Weston, Consulting Sanitary Engr., 14 Beacon St., Boston, Mass. Perm. 106 Spruce St., Portland, Me.

**Julian Osgood Goodrich, B.S.** With the firm Walker, Walker & Goodrich, Surveyors and Civil Engrs., 44 State St., Montpelier, and Barre, Vt. Perm. So. Royalton, Vt.

**William Davis Gordon, B.S.** Construction foreman for H. L. Stevens & Co., of Chicago, Ill., on seven-story, reinforced concrete hotel in Sioux City, Iowa. Res. 2719 Jackson St.

**Alfred Albert Hormel, B.S.** With George F. Hardy, Mill and Hydraulic Engr., 309 Broadway, New York City. In charge of construction of hydro-electric plant St. Croix Paper Co., Woodland, Me. Res. 41 M St., South Boston, Mass. T.S.

**Warren Fuller Kimball, B.S.** Draftsman Assoc. Factory Mutual Fire Ins. Cos., 810 Denckla Bldg., Phila., Pa. Perm. 30 Lee St., Cambridge, Mass. T.S.

**Clyde Earle Locke, B.S.** Asst. in Buffalo office of the Turner Construction Co., of 11 Broadway, New York City. 312 Prudential Bldg., Buffalo, N. Y. Perm. Orleans, Vt. T.S.

**Leon Craig Marshall, B.S.** U. S. Forest Service Appalachian Div., now in the White Mountain area. Address office, Washington, D. C. Perm. Hanover, N. H. Formerly of the class of 1910.

**Harold Warren Pease, B.A.** Foreman on construction for the Hastings Pavement Co., 25 Broad St., New York City. Res. 123 Fourth St., Long Island City, N. Y. Perm. 297 Grove St., Fall River, Mass.

**Frank Sumner Whitcomb, B.A.** Draftsman, American Bridge Co., Pencoyd Plant, 132 Sumac St., Wissahickon, Phila., Pa. Perm. 2 Belmont St., Lowell, Mass. T.S.

**Riley Tilton Young, B.A.** With H. S. Ferguson, Mill and Hydraulic Engr., 200 Fifth Ave., New York City. Asst. Engr. on construction of a pulp mill at Fitzdale, Vt. Perm. Littleton, N. H.

*Harold Andrew Campbell, B.S.* Service under the Isthmian Canal Commission until July, 1912. Now in office of Grand Trunk R. R. at St. Albans, Vt. Expects to go into mechanical engineering.

*Kenneth Johnston Knapp, B.S.* Asst. in City Engr.'s office, Rochester, N. Y. Res. 198 Lake Ave.

*\*\*John Wells Noyes, B.S.* Killed on the works of the Mississippi River Power Co., at Keokuk, Iowa, Sept., 1911. See *Necrology*.

*Edward Smith Poole, B.S.* No definite report. Res. 48 Manning Boulevard, Albany, N. Y.

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## STATISTICAL SUMMARY

Graduates of Dartmouth College	-	-	-	-	-	-	319
Graduates of other Colleges	-	-	-	-	-	-	25
Partial College courses	-	-	-	-	-	-	15
No systematic College course	-	-	-	-	-	-	15
Total attendance, forty-one years, thirty-nine classes	-	-	-	-	-	-	358
Total who attended both years, full course	-	-	-	-	-	-	252
Total who attended one year	-	-	-	-	-	-	106
Percentage who took graduate course,—six or five years							71%
Average attendance each year,— $(2 \times 252 + 106) \div 40 =$							nearly 15
Number for present session year, not included in averages	-	-	-	-	-	-	30
Deceased	-	-	-	-	-	-	30
Membership in Am. Soc. Civ. Engrs. and Mech. Engrs.	-	-	-	-	-	-	76
Membership in other engineering and kindred societies	-	-	-	-	-	-	101
Membership in Thayer Society of Engineers	-	-	-	-	-	-	151

## STUDENTS OF THE YEAR 1912-13

### CLASS OF 1913—POST-GRADUATE YEAR

[Prospective class to resume classwork Sept. 19.  
Subject to change after this publication.]

- Baker, Harold Tower, B.S.      *348 Center St., Dorchester, Mass.*  
Employed as transitman by Ambursen Hyd. Const. Co.
- Baker, Ralph Edmund, B.S.      *348 Center St., Dorchester, Mass.*  
With City Engr., Manchester, N. H.
- Doe, Nelson Luther, B.S.      *Bradford, Vt.*  
Rodman for the N. Y. C. R. R. under general supervision of  
P. H. Winchester, T. S. C. E. 1900.
- Farrington, George Hobart, B.S.      *Kingston, Mass.*  
Chainman for N. Y., N. H. & H. R. R., on the Hawleyville-  
Shelton double tracking.
- Goodrich, Claude Moulton, B.S.      *10 Harrison Ave., St. Johnsbury, Vt.*  
With the E. & T. Fairbanks Co., Scale Mfgs., St. Johnsbury,  
Vt.
- Hitchcock, George, B.S.      *11 Hawley St., Newton, Mass.*  
Surveyor in the D. C. Grant for the Trustees of the College  
during the summer.
- Hobbs, Samuel, B.S.      *Pelham, N. H.*  
With the Mass. Highway Commission on the Nahant road  
as one of the resident engrs.
- Mitchell, Edmund Irving, B.S.      *770 Putnam Ave., Brooklyn, N. Y.*  
Timekeeper and Material Clerk for Clark and Co., until July.  
With Robt. W. Hunt & Co., until Aug. 1, and with Post &  
McCord in drafting office.
- Perley, Lew Knowlton, B.S.      *Laconia, N. H.*  
Asst. to C. A. French, City Engr. of Laconia, N. H.
- Snow, Mark George, B.S.      *91 Oak St., Middleboro, Mass.*  
Transitman for Power Construction Co., at Hoosac Tunnel,  
Mass.

- Stevens, Samuel Spaulding, B.S. *Salem, Mass.*  
Located with W. A. Perkins, T. S. C. E. '05, on the construction of the Two Medicine Dam, U. S. R. S., Montana.
- Stone, Ried Herrick *R. F. D., 2, Concord, N. H.*  
Asst. to the City Engineer, Franklin, N. H.
- Waterbury, Lewis Clement, B.S. *Oriskany, N. Y.*  
With New York Central at Watertown, N. Y., Lowville, N. Y., and Potsdam, N. Y., on bridge work, track laying, etc.
- Whitney, Ralph Edward, B.S. *154 Washington St., Keene, N. H.*  
Field Asst. in the THAYER SCHOOL during July, August, and September. Also on surveys for the College in May and June.
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## INTERMEDIATE YEAR—NON-RESIDENT GROUP

[Subject to change before the make-up of class of 1913 is determined.]

- Brewster, John Densmore *Windsor, Vt.*  
Rodman and Surveyman on Grand Trunk Railway in New Hampshire, and Massachusetts. Care South New Eng. R. R. Co., Ayer Block, Nashua, N. H.
- Brown, Harry Madara *Mount Kisco, N. Y.*  
With St. Croix Paper Co., Woodland, Me., on hydro-electric development, for Geo. F. Hardy of New York.
- Horne, Ewart Gladstone *7 Sheridan St., Lawrence, Mass.*  
Material man for Aberthaw Construction Co., of Boston on new Simms Bldg., at St. Johns, N. B.
- Lewis, Joseph William *64 Verona St., Lynn, Mass.*  
With Boston and Albany R. R. until August 14. Now in Rutland, Mass.
- Lewis, Roy Everett *32 Parkhurst St., Lebanon, N. H.*  
Assistant to Harold Parker '08 on construction of reinforced concrete buildings for United Fruit Co., in Puerto Barrios, Guatemala.

## FIRST-YEAR CLASS (T. S. C. E., 1913)

(The year of this class began July 16. Unless otherwise indicated members of this class are Seniors in Dartmouth College and candidates for the College degree of B.S. in 1913.)

Abbot, Henry Deshon	<i>Cambridge, Mass.</i>	68 Sparks St.
Barends, Howard Arthur	<i>Albany, N. Y.</i>	405 Delaware Ave.
Cole, Harry Waldo	<i>Beecher Falls, Vt.</i>	
Davidson, George Burrett	<i>Prince Bay, Staten Island, N. Y.</i>	
Dolan, Joseph Michael	<i>New York City</i>	29 East 130th St.
Gibson, William Martin	<i>East Ryegate, Vt.</i>	
Kingsbury, Elbridge Herbert	<i>Keene, N. H.</i>	257 Roxbury St.
Macdonald, John Stephen	<i>Dorchester Ctr., Mass.</i>	33 Carruth St.
Osborne, Herbert Carroll	<i>Keene, N. H.</i>	Gurnsey Bldg.
Perkins, Herbert Marsh	<i>Windsor, Vt.</i>	
Proctor, Henry Sherman, Jr.	<i>Westerly, R. I.</i>	31 Palmer St.
Spencer, Frank Foss	<i>Berwick, Me.</i>	
Stiles, Edwin Milo	<i>Alton, N. H.</i>	
Stiles, George Henry	<i>Goffstown, N. H.</i>	
Tucker, Clayton Elmer	<i>Chelsea, Mass.</i>	41 Harvard St.
Wilbur, Conrad Church	<i>Minneapolis, Minn.</i>	
		2603 Colfax Ave., S.



## OCCURRENCES—SESSION YEAR 1911-12

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### ANNUAL EXAMINATION AND GRADUATION APRIL 23 AND 24, 1912

#### THESES AND CANDIDATES

##### FOR THE DEGREE OF CIVIL ENGINEER

1. The Development and Effects of Heavy Rolling Stock.  
HAROLD LEWIS ENGLISH, B.S. *Lisbon, N. H.*
2. Tests of Concrete Aggregate with Sawdust in Place of Stone.  
SYDNEY CLIFFORD BEANE, B.S. *No. Weymouth, Mass.*  
HAROLD WARREN PEASE, B.A. *Fall River, Mass.*  
RILEY TILTON YOUNG, B.A. *Littleton, N. H.*
3. The Design of Square Footings of Reinforced Concrete.  
CLYDE EARLE LOCKE, B.S. *Orleans, Vt.*
4. Experimental Investigation of Web Stresses in Beams of Reinforced Concrete.  
JOHN JACKSON BOYNTON, B.S. *Claremont, N. H.*  
WILLIAM DAVIS GORDON, B.S. *Sioux City, Iowa.*
5. Development of a Program of Experiments for the New Hydraulic Laboratory of the Thayer School, and a Special Investigation of Efficiency of a Hydraulic Ram.  
WILLARD MERRILL GOODING, B.S. *Portland, Me.*  
ALFRED ALBERT HORMEL, B.S. *So. Boston, Mass.*  
WARREN FULLER KIMBALL, B.S. *Cambridge, Mass.*
6. Sand Filtration of Potable Water for the Household.  
LEON CRAIG MARSHALL, B.S. *Hanover, N. H.*  
FRANK SUMNER WHITCOMB, B.A. *Lowell, Mass.*
7. Water Supply and Sewerage: Project for South Royalton, Vt.  
CLARENCE EUGENE ELLSWORTH, B.S. *Wentworth, N. H.*  
JULIAN OSGOOD GOODRICH, B.S. *Sp. Royalton, Vt.*

**JOINT GRADUATING EXERCISES AND DINNER.**

After the examination of the candidates through the reading and discussion of the theses, the Board of Overseers made the usual recommendations for the award of diplomas. At 6 P. M., the Board of Overseers, the Faculties of the Medical College, Thayer School of Civil Engineering, and Tuck School of Administration and Finance, and candidates for the three professional degrees met in the Faculty room of the new Administration Building where the diplomas were presented with simple formalities by the President of Dartmouth College to the three graduating classes. Immediately after this, adjournment was made to College Hall where, by invitation of the Trustees of the College, all of the participants in the aforesaid exercises partook of a dinner; after which appropriate remarks were made by one representative of each institution and one speaker from each of the classes.

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**EXAMINATION OF THE FIRST-YEAR CLASS.** On the following morning the members of this class appeared before the Board of Overseers and presented their drawings, note books, and computation books. Individual members of the class made brief statements describing the field operations, office work, laboratory tests and the various studies of the year, and were questioned by the members of the Board.

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**PRESENTATION BY THE CLASS OF 1912.** The class made a small collection from each member and presented the sum to the Director to be used in the purchase of some necessary equipment to have suitable designation as a gift from the class. This will be used in the purchase of a piece of apparatus for facilitating the presentation of lantern views in the lecture room.

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**VISITS OF ALUMNI.** Occasional calls have been made by the following THAYER SCHOOL men during the year from September 1, 1911, to September 2, 1912:—

J. P. Snow, 1875	W. H. Fox, 1907
O. E. Hovey, 1889	H. G. Porter, 1907
F. B. Sanborn, 1889	C. R. Main, 1908
H. N. Savage, 1890	A. B. Barnes, 1909
S. G. Walker, 1893	J. C. Beebe, 1910
W. C. Phelps, 1895	R. W. Noyes, 1911
M. F. Brown, 1898	R. E. Parker, 1911
J. L. Mann, 1898	E. H. Pierce, 1911
E. M. Stevens, 1902	R. A. Sherwin, 1911
M. E. Witham, 1906	L. C. Marshall, 1912

The following called at the SCHOOL during Commencement Week:—

R. T. Gile, 1879	Crosby Tappan, 1905
C. F. Chase, 1889	H. M. Gray, 1908
S. G. Walker, 1893, and wife	H. D. Hinman, 1908
A. C. Tozzer, 1903	F. H. Munkelt, 1909
L. B. Farr, 1903	E. T. Richards, 1909
H. E. Plumer, 1903	L. C. Waterbury, 1913

The following Dartmouth Alumni have also called:—

A. W. Edson (1878), City Superintendent of Schools, New York City, with Mrs. Edson.

S. E. Junkins (1887), Vice-President of Westinghouse, Church, Kerr & Co., New York.

Other friends:—

Mr. Allen Hazen, Consulting Engineer, New York City, and family.

George C. Davis, President of the Women's Normal College, New York City.

**LABORATORY EQUIPMENT.** Mr. Allen Hazen gave \$500 towards the equipment of the hydraulic laboratory as a memorial to his brother, Richard Hazen, of the class of 1909. A memorial bronze tablet is mounted at the entrance to the laboratory.

## TRIP FOR INSPECTION OF WORKS IN BOSTON AND VICINITY

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At the nearly unanimous request of both classes the Director arranged a trip to cover the two days just preceding the Dartmouth-Harvard football game, November 15th to 17th.

For the success of the trip acknowledgment is made for aid and courtesies extended by Mr. J. P. Snow (T. S. C. E., 1875), lately chief engineer of the B. & M. R. R. Co., and his assistant J. W. Ingalls (T. S., 1911); to B. T. Wheeler (Dart. Coll., 1884) Engineer of Construction of N. Y., N. H. & H., and B. & M. R. R's.; Mr. Morrill, Assistant Engineer of Construction Department, and others mentioned beyond. The party comprised thirty-two, including S. L. Ruggles, instructor. The following works were inspected:—

SAUGUS RIVER BRIDGE and LYNN GRADE RAISING. Mr. Morrill and Mr. L. C. Lawton, Ass't Eng. B. & M. Ry. conducted the party to the works for foundations for the Saugus River bridge, which is of the rolling-lift type. One pier was being built in a floating caisson and one under construction within a coffer-dam which was partly submerged and work held up for high tide. At Lynn and East Lynn much fine concrete masonry was viewed.

THE GAS AND COKE WORKS at Everett, of the New England Gas & Coke Co., where the management kindly detailed Mr. Way, the chemist, to serve as conductor, displayed its always impressive spectacular features. The Navy Yard had for its chief exhibit the battleship Florida which was in dry-dock.

AT THE CHARLES RIVER DAM, LOCK, AND CONCRETE ARCH BRIDGE, the lock and operation of the lower lock gate were closely inspected. Mr. A. I. Plaisted, Electrical Engineer of the Charles River Basin Comm., kindly took the

party under guidance, and operated the lower lock gate and showed the mechanical features within and without.

THE BOSTON BRIDGE WORKS were inspected under direction of Mr. J. G. Andrews (T. S. C. E., 1902), contracting engineer of the firm; these works are the most extensive structural works in New England (D. H. Andrews, Dart. Coll., C. S. D., 1869, proprietor; and M. F. Brown, T. S. C. E., 1898, chief engineer). The drawing room, templet room, and the various operations in the shops all had points of interest.

C. L. BERGER & SONS' MANUFACTORY OF ENGINEERS' INSTRUMENTS was the meeting place on the 16th. A cordial reception was given by C. L. Berger, Senior (who began in the business fifty-five years ago), his two sons and assistants. They had arranged an exhibition of nearly all sizes and styles of instruments which they make for all purposes (some from new patterns), and for special uses for the United States and other Governments.

SOUTH TERMINAL STATION, ICE PLANT, PINTSCH GAS PLANT, SCHERZER BRIDGES AND SIGNAL TOWER were thoroughly viewed under direction of Mr. Morrill and the Station Superintendent.

The three double track, rolling lift bridges over the Fort Point Channel afforded much interest and instruction as usual. They were all raised in presence of the party to allow passage of tug boats, and the ease and quickness of the operation were impressive.

SEWAGE-DISPOSAL PLANT OF THE MASS. INST. OF TECHNOLOGY. By courtesy of Professor Sedgewick of the Institute, Mr. Smith, assistant in the department of sanitary engineering, conducted the party to the new plant at Dorchester Point. Results of the experiments conducted by the Institute during past years, bearing on questions of sewage purification, have been widely published. Mr. Smith explained the arrangement of the plant for disposal by septic tank and filtration, by sprinkling upon contact beds of broken stone, etc., and the contrivances for the dosing which are to be installed.

THE MAIN DRAINAGE WORKS OF THE CITY OF BOSTON, at this same point, is an exhibit of huge proportions, receiving the sewage from all of the city proper, south of Charles River which comes in a sewer 11 feet in diameter to a point about 20 feet below sea level. After passing through screens the sewage, including storm water, is raised 42 feet so as to flow through a long deposit sewer, thence down a shaft 160 feet or more deep through a tunnel  $1\frac{1}{2}$  miles long under Dorchester Bay to Squantum; thence by sewer in a causeway another mile to Moon Island to reservoirs, whence it is discharged by gravity out to sea on the ebb tide. The old Leavitt engine, and the new, each having two flywheels 36 feet in diameter, were seen in operation. The new engine makes 17 revolutions per minute, and at every revolution the plungers displace and raise 3,000 gallons, or 72,000,000 gallons per day. The old Worthington storm-water engines are being removed to make way for DeLaval steam turbines driving turbine pumps, which are expected to do the storm water service required after heavy rainfall. Mr. Robinson, the engineer in charge, conducted the party through all parts of this great municipal plant and explained its workings so far as possible.

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In October the class made two excursions: one was to the power plant and paper mills of the International Paper Co. at Wilder on the Connecticut River. Later a thirty-mile trip by carriages was made to inspect the new steel arch bridge (200 feet) over Quechee gorge, the bridges at West Hartford, Hartford, and White River Junction, the earth dam, reservoir, and gatehouse at White River Junction, and the power development on Mascoma River for electric lighting, which is almost new.

## SPECIAL MENTION

Mr. M. O. Withey (1905), is engaged with two other members of the Faculty of the University of Wisconsin in a complete revision of Johnson's "Materials of Construction."

Mr. H. L. Muchemore (1906), has had some interesting experiences in the construction and sinking of hollow concrete piers of conical shape for the Puget Sound Navy Yard. He has contributed an interesting article on this to the *Engineering Record* of June 22, last.

The SCHOOL is indebted to S. M. Wilcox (1887), for a recent chart of Galveston harbor and vicinity, and drawings and information relating to the sea walls to protect the ocean front of the city.

Mr. Samuel J. Lord (1896), recently showed the Director, at the City Yards in Manchester, some of his modern "dollar savers." These are in the shape of Canastota (Watson) wagons of five cubic yards capacity propelled by gasolene motors. The economies secured by these wagons are quite surprising both as to time saved and quantities hauled. He also has in very successful operation a neat and compact cube concrete mixer, motor driven, which he thinks is the best thing of its kind to be had. Mr. Lord is conducting operations on a large scale and with efficient management calculated to secure the very best results for the city.

Mr. Harold Parker (1908), wrote recently describing in considerable detail his interesting work in the construction of a reinforced concrete hospital, etc., for the United Fruit Company at Puerto Barrios, Guatemala. It is the kind of letter and contains that sort of description in detail which is exceedingly interesting and instructive for the Faculty and students of the THAYER SCHOOL.

Mr. J. W. Ingalls (1911), recently wrote an equally acceptable letter describing in detail the work on the Brimfield Residency of the Grand Trunk Railway Service in Massachusetts.

Interesting and instructive letters have also been received from W. H. Eastman 1911, Buxton, and others.

Sidney G. Walker (1893), after his lecture in March donated to the SCHOOL a very full collection of standard sprinklers for fire protection, neatly mounted and labeled.

RELIC OF THE QUECHEE RAILROAD BRIDGE.  
When the bridge of the Woodstock R. R. was replaced by a steel arch a year ago, Mr. J. J. Dewey, President of the Woodstock R. R. Co., presented to the THAYER SCHOOL one panel length of

the lower chord containing one of the bolt and bar reinforcements for defective splices which the Director designed sixteen years ago, by which the bridge was strengthened and made serviceable meanwhile. This Mr. Dewey kindly delivered f. o. b. at our railroad station (11½ feet long, 14 inches deep, 3 feet wide and weighs about 1000 pounds). It is suitably placed in the basement, with framed photos. and drawings showing the history of the bridge.

In the library, on the large new map of the United States published by the Gen. Land Office, a number label pinned over each state indicates the number of THAYER SCHOOL men located there within the past two years. On the margins, labels indicate the numbers in the West Indies, South America, etc. This shows at a glance the present distribution of all T. S. men.

In July the Director accepted an urgent invitation from H. N. Savage (1900), Supervising Engineer of the U. S. Reclamation Service, to visit the various projects of the northern division in company with General W. L. Marshall, lately chief of engineers, U. S. Army, and Consulting Engineer for the Interior Department, who was to make a tour of inspection. Starting at the Huntley project, near Billings, Montana, this tour involved a total travel of 2500 miles, through Montana, Wyoming, and North Dakota, by rail, automobile, and wagon, back to Billings. Other projects visited were the Shoshone, including the dam and lake, and a trip up the valley and gorge almost to the Yellowstone Park; the lower Yellowstone project, 64 miles in length; the Williston and Buford, known as the North Dakota pumping projects; the Fort Peck Indian Reservation and the Milk River project, viewed from the train along the Missouri and Milk Rivers for a distance of 225 miles; the Sun River project, 80 miles long and 20 miles wide, including the Fort Shaw unit completed, and a trip into the mountains to the sites of the proposed stupendous storage and diversion dams; the Two Medicine dam at the head of the Blackfeet project in the Blackfeet Indian Reservation on the edge of Glacier National Park; the St. Mary Camp and the principal sites of the proposed St. Mary storage works including McDermott lake in Glacier Park; and the Flathead project, west of the Rocky Mountains, including a ride over the length of Flathead lake, a view of the great gorge and site of the proposed monumental Newell dam and the remarkable feeder canal built along the base of the Mission ridge,—collecting and distributing waters



into storage reservoirs and over the plains. Some of Nature's hydraulics in Yellowstone Park were seen on a side trip.

THAYER SCHOOL men seen on this trip were:—Russell, in charge of the Shoshone dam; Beebee, in Havre; Porter and Smyth in Helena, busy with a test of a new electrical installation for metallurgical reduction; Knapp at the Willow Creek reservoir dam, Sun River project; Perkins at Two Medicine dam, of which he is constructing engineer in charge, with S. S. Stevens, draftsman in his office; and Ralph Hazen at Blackfeet project headquarters, Browning, Mont. Missed Childs by a mischance.

A call was made on A. W. Hardy in Chicago, and acknowledgement for courtesies received are due especially to Curtis and Angier and their families.

In New York during June the Director called upon Hovey, Morrison, Phelps, Ferguson, and Clark, who extended courtesies; and regretted that circumstances did not permit visiting others upon their works.

At the meeting of the International Assoc. for Testing Materials in New York City on September 5th, the quality of American rails was seriously questioned, and the better endurances of English and German rails held to result from use of smaller ingots, as foreign makers are not so anxious to force large outputs. American engineers retorted that no sufficient tests are made abroad to prove this assumption.

"An answer was made to this argument by J. P. Snow (T. S. C. E., 1875), a prominent consulting engineer of Boston, Mass.

"Mr. Snow insists that the load imposed upon rails in this country was much greater than in any nation of the world, owing to our immense interstate freight traffic and our heavy, powerful cars and locomotives. He declared that the number of rail accidents was due rather to this cause than to any defect in the rails themselves.

"‘The wheel load now imposed upon rails,’ he declared, ‘is so near the limit of endurance of carbon steel that it is necessary to seek for the highest attainable character of metal that can be obtained on a commercial basis.’

"The speaker then reviewed a series of experimental tests which had been made by American engineers to remedy defects in domestic rails, which he declared had met with such success that American rails as rolled today were much better than those rolled five or even three years ago."—*Boston Transcript*, Sept. 6.

## NECROLOGY

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**William Hazelton Puffer** of the class of 1892. Intelligence of the death of Mr. Puffer was conveyed to the Faculty of the THAYER SCHOOL in a copy of the North Troy, Vermont, *Palladium*, dated April 4, 1912. At the request of the Director Mrs. Puffer furnished the following information in a letter dated April 22:—

"Mr. Puffer died at Pecos, Texas, March 17, of cerebro spinal meningitis. He was the son of Rev. and Mrs. John M. Puffer. Directly after he graduated from the THAYER SCHOOL in 1892, he accepted a position with the Atchison, Topeka & Santa Fe R. R. as assistant engineer on general railroad work (1892 and 1893); during 1894 and 1895 he was in Mexico as assistant engineer in charge of construction on the Cuernavaca branch of the Mexican Central R. R.; and in 1896 was in the employ of the Boston & Maine, in charge of a party which was relocating the central lines of that railroad. In the summer of 1898 he had charge of the concrete work for U. S. Government at Fort Hamilton. During several of the following years he was Superintendent of Construction at Bronx Park, New York City. For the past ten years he had been engaged in mining in Mexico. He was manager of La Lula Mining Co. (La Luz Guanajuato), from 1906 until January of the present year and was a director in the company from the date of its organization until his death. He was on his way to Carlsbad, N. M., where he intended to reside, when he was stricken with the disease which resulted in his death after an illness of only two days. Mr. Puffer was a member of the American Society of Civil Engineers."

The following additional facts were furnished by John M. Comstock, statistical secretary of the Dartmouth College Alumni, and published in the *Alumni Magazine* for May, 1912:—"Mr. Puffer was born in St. Johnsbury, Vt., May 3, 1861. His father was a Methodist minister of the Vermont Conference, and died in 1874. His early years were spent on a farm in support of the family, after which he prepared for college at St. Johnsbury

Academy, graduating there in 1887. He was then for three years in the class of '91, Chandler Scientific Department, preparing for the Thayer School, in which he took the two years' course. After graduation he was engaged in railroad engineering with the Atchison, Topeka, and Santa Fe, Mexican Central, and Boston and Maine Railroads successively. From 1899 to 1902 he was superintendent of construction at the Zoölogical Park in Bronx, New York City. He then engaged in mining enterprises in Guanajuato, Mexico, and was manager of the La Tula Mining Company from 1906 until January of the present year. Having closed up his business in Mexico, he had been staying a few weeks in El Paso, and was on his way to Carlsbad, N. M., where he intended to reside. He was a man of recognized qualities,—honest, upright, and fearless, humane and generous,—and possessed in an unusual degree the faculty of making friends. He was married in September, 1892, to Helen R., daughter of Samuel R. and Orcelia (Kenney) Davis of Troy, Vt., who survives him, with their three children."

A few words of personal recollection may be of interest in this connection:—When Mr. Puffer was superintendent of construction at the Zoölogical Park in New York the Director called upon him and he took great interest in showing the various features of the Park and his work in construction and management. He related this incident which evidently gave him some amusement:—One of the large animals got loose in one of the larger enclosures, the writer does not recall whether it was a bison or a bear; but the keepers were at their wits end and did not know what to do. Mr. Puffer, with his farm training, was not disconcerted, and he had them drive the animal into a corner of the enclosure, and having rigged a proper frame or cage on a cart, he had the cart backed up and the animal was caught without great difficulty. Mr. Puffer said that the newspaper correspondents made a great story of it for the papers and the man who got all the credit was the political appointee technically his superior, while his name did not appear at all.

On another occasion when the Director met Mr. Puffer in New York he inquired where he was living. Mr. Puffer replied, "Professor, I am not living; I am boarding."

Professor A. W. French, head of the engineering department of the Worcester Polytechnic Institute, his classmate, writes as follows:—"I am surprised and shocked to read in your letter

of the death of my classmate, William H. Puffer. He certainly was a man of sterling qualities and his departure has removed a friend, true and tried, from my all too small list."

**John Wells Noyes of 1912.** The sudden death of Noyes by accident in the line of duty occurring in Sept., 1911, the information was received too late to be noted in the ANNUAL of last year. Dr. Edmund Noyes, his father, has sent a copy of his church paper, *The Congregational Chronicle* of Evanston, Ill., containing the following memorial statement:—

#### THE DEATH OF JOHN W. NOYES

Friday morning, Chicago papers brought sad news to many Evanston hearts and homes. A brief paragraph told how on the previous day, Thursday, September 14, our young friend, Mr. John W. Noyes, was killed at Keokuk, Iowa. Shortly after graduating from Dartmouth College last June, he secured a position with the Mississippi River Power Co., which is building a dam, power house, and new locks at Keokuk, Ia. Mr. Noyes spent his senior year at Dartmouth in the THAYER SCHOOL OF ENGINEERING, and it was his purpose to spend at least a year in practical experience and observation of engineering work before completing his study work for his degree in engineering. While walking along the tracks on the Iowa side he was hit by a construction train. Both legs were crushed. He, however, retained consciousness and bravely told his rescuers to telegraph his father, Dr. Edmund Noyes, who was at that time at Delevan Lake, Wis. He was taken to the hospital and died under the influence of an anæsthetic.

John Noyes was twenty-two years old last March. He and his twin brother, William, grew up in Evanston, where the family have lived for eighteen years. The two boys, who were familiarly known as Jack and Bill, completed one year at our Evanston High School, after which they lived in the family of their oldest brother, and attended until their graduation, the Central High School in Washington, D. C. Four years ago they entered Dartmouth College, from which John graduated last year, standing high in his class.

When he entered college he was rather a diffident and reserved youth. Realizing that he made friends rather slowly he deliberately set to work to make himself a good mixer. And he

succeeded without lowering his standard of either conduct or manners. He was fond of athletics. He was the best mile runner at Dartmouth, having lowered the mile record, a record that had been standing for eighteen years. He was a high grade student, as is evidenced by the fact that no Dartmouth man is allowed to enter the THAYER SCHOOL unless his scholarship is most excellent. His instructors referred to him as one of the best all-round men in the engineering course. His life was full of promise. If he had lived, his name would have been associated with some great engineering undertaking. He was getting ready, and he was getting ready well.

He was absolutely faithful and trustworthy about everything he said or did. He was most kind and lovable and unselfish with his friends and in his family. He was a faithful member of the Congregational Sunday-school and Church, and deeply interested in all its work. He was a member of the Beta Theta Pi fraternity, and greatly enjoyed the friendship and good fellowship he found in that brotherhood.

The funeral service was held at the home of his father, Dr. Edmund Noyes, 1205 Hinman Avenue, on Sunday afternoon, September 17. A large company of friends of the family were present. There were many floral tokens of regard and sympathy, some of which were afterward sent to the hospital, and others of which were sent to the Bethesda Church, in which Mr. John Noyes was so deeply interested.

Dr. William E. McElveen, of the First Congregational Church, officiated. He said that death presents itself in many aspects. Sometimes an aged man is taken. The reaper death harvests the bearded grain. Sometimes a babe is taken. The frost of death nips the tiny bud. In this tragedy death presents its most repellent face. A youth, full of promise and possibility, well prepared for a life of efficiency, is suddenly struck down. There are some compensating thoughts, however, to speak on an occasion like this. This young life, the earthly chapter of which so suddenly closed, was an unsullied, wholesome life. It was clean, pure, upright, morally ambitious, and spiritually aspiring. It had about it a flavor of immortality. It had qualities in it which cannot die. It was interested in causes that are identified with Christ's Kingdom of God. While it was an incompleated life, yet in a sense it was well rounded as far as it had grown.

GEOGRAPHICAL DISTRIBUTION OF THAYER SCHOOL  
MEN, SEPTEMBER, 1912

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**Alaska:** C. E. Ellsworth.

**Alberta, Canada:** A. H. Ayers.

**Argentina:** H. B. Tabor.

**Brazil:** F. S. Weston.

**British Columbia:** H. W. Clark, M. J. Leahy.

**California:** J. A. Worthen, E. P. Dewey, H. S. Eaton, H. H. Sears, C. W. Davis, B. W. Matteson, E. A. Lincoln, H. B. Dore (?).

**Carolina (North and South):** H. D. King (Charleston), J. T. Chase.

**Colorado:** D. R. Reed, J. Y. Jewett, M. E. Witham, H. R. Harrison.

**Connecticut:** D. E. Bradley, C. H. Cheney, C. F. Chase, E. M. Stone, C. E. Paddock, A. H. Greenwood, H. S. Watson, R. B. Doane, A. H. Schilling, J. F. Doonan.

**Cuba:** J. A. Macnicol, G. H. Nolan.

**Dakota (North and South):** F. G. Cook.

**Florida:** E. R. Davis, F. S. Perham (1910).

**Georgia:** J. W. Ash.

**Guatemala:** Harold Parker, R. E. Lewis.

**Hawaii:** C. B. Worthen (?), H. W. Robinson.

**Idaho:** F. W. Welch.

**Illinois:** G. A. Butler, C. A. Rich, H. O. Rugg.

**In or Within Fifty Miles of Chicago:** W. W. Curtis, W. E. Angier, A. W. Hardy, J. B. McIntyre, F. H. Stowell, J. S. Adams, H. L. Boynton, W. R. Kimball, C. P. Richardson, W. C. Winkley.

**Indiana:** M. A. Howe, Albert Smith.

**Iowa:** J. D. Lonsdale, J. H. Dunlap, R. W. Noyes, W. D. Gordon.

- Kansas:** J. F. Springfield, G. F. Baine, H. K. Hibbard.
- Kentucky:** J. A. Gilman, W. H. Fox.
- Louisiana:** J. A. Anderson, Donald Derickson (New Orleans).
- Maine:** W. M. Ames, C. K. Hosford, F. B. Greenleaf, N. H. Knight, A. A. Hormel, H. M. Brown.
- Maryland:** H. M. Paul, C. M. Soule.
- Massachusetts:** C. E. Andrews, R. H. Brown, A. W. French, A. A. Adams, O. P. Tabor, H. K. C. de Anguera, A. W. Hare, H. N. Cross, G. A. Lewis, W. T. Shaw, R. W. Brown, W. C. Winkley, F. S. Austin, J. W. Ingalls, J. D. Brewster J. W. Lewis.
- In or Within Fifty Miles of Boston:** J. P. Snow, B. Phillips, F. B. Sanborn, H. A. Symonds, H. R. Thurston, J. H. Letteney, H. N. Chase, G. W. Parker, W. B. Plumer, M. F. Brown, W. H. Ham, A. L. Galusha, J. G. Andrews, G. A. Sampson, H. W. Fitts, C. L. Bourne, C. R. Main, A. B. Barnes, F. K. English, Benj. Ayer, R. E. Parker, E. H. Pierce, R. A. Sherwin, G. E. Chamberlin, S. C. Beane, W. M. Gooding, E. M. Stevens (27).
- Mexico:** G. W. Newman.
- Minnesota:** G. H. Hutchinson, S. A. McCoy, L. S. Oakes, P. W. Stickney.
- Missouri:** E. K. Blanchard, C. D. Lamb, H. M. Hess.
- Montana:** H. N. Savage, W. A. Perkins, M. C. Knapp, R. W. Hazen, J. C. Beebe, J. W. Childs, J. M. Porter, J. M. Smyth, S. S. Stevens.
- Nebraska:** Charles Sargent, A. H. Norris, W. B. Smith.
- New Brunswick:** J. W. Crowell, E. G. Horne.
- New Hampshire:** J. T. Woodbury, J. V. Hazen, C. H. Pettee, R. T. Gile, J. D. Hutchinson, Rush Chellis, C. F. Robinson, John Walker, C. T. Rossiter, W. H. Langmaid, S. J. Lord, H. A. Cochran, C. A. Holden, C. H. Hoyt, E. H. Hunter, E. M. Stevens, H. M. Haskell, F. F. Parker, N. F. Davis, S. F. Ruggles, J. H. Stone, R. B. Clement, D. T. Reed, P. S. Dow, E. W. Keith, R. H. Stone, J. D. Brewster, R. T. Young.
- New Jersey:** S. J. Johnson, F. L. Wheaton, W. N. Hazen, H. E. Abbott, C. F. Goodrich, R. C. Wood, J. A. Cassidy, W. H. Eastman, Maurice Readey, H. L. English.

**New Mexico:** Vincente Molina.

**New York:** J. W. Record, F. H. Trow, H. A. Warden, J. L. Sanborn, P. H. Winchester, C. R. Chase, D. Derickson, H. C. Hill, H. E. Plumer, H. C. Adams, H. M. Morse, H. L. Ropes, O. L. Burdett, N. S. Buckbee, H. A. Morey, W. C. Rich, F. E. Schilling, B. H. Dudley, H. A. Ward, L. H. Sisson, C. E. Locke, K. J. Knapp, E. S. Poole.

**In or Within Fifty Miles of New York City:** S. B. Cady, J. J. Hopper, S. J. Johnson, C. H. Nichols, O. E. Hovey, T. Flynn, A. B. Clark, G. P. Wood, H. S. Ferguson, E. J. Morrison, W. C. Phelps, B. F. Welton, G. J. McIndoe, A. W. Stone, J. L. Averill, E. B. Wardle, J. M. Gibson, T. T. Whittier, E. H. Sprague, F. E. Cudworth, F. B. Marsh, W. F. Rugg, E. F. Whitaker, L. B. Farr, J. E. Porter, H. S. Richmond, A. C. Tozzer, T. R. Remsen, C. A. Studwell, J. W. Mair, F. W. Osgood, W. A. Conley, C. P. Smith, G. R. Colson, W. E. Hawley, C. M. Everett, H. G. Porter, S. F. Garvin, S. C. Bartlett, H. M. Gray, W. M. Silleck, R. R. Marsden, F. H. Munkelt, P. L. Thompson, D. R. Bradley, O. W. Cushman, R. R. Gould, A. L. Herrick, E. W. Higbee, W. H. Krafft, Fletcher Rogers, H. A. Wells, A. W. Wood, J. R. Kinney, G. M. Perry, P. N. Storer, J. J. Boynton, A. A. Hormel, H. W. Pease, R. T. Young, F. L. Wheaton, W. N. Hazen, H. E. Abbott, C. F. Goodrich, R. C. Wood, J. A. Cassidy, W. H. Eastman, Maurice Readey, H. L. English (69).

**Nova Scotia:** W. C. Risley, John Walker of 1893.

**Ohio:** J. H. Fellows, Roy Mullins, C. A. Luck, A. B. Rutherford, A. L. Buxton, E. M. Steward.

**Oregon:** G. E. Woodward, R. S. Danforth, C. W. Ross, F. G. Leary.

**Panama, C. Z.:** F. C. Stanton, H. D. Hinman, C. E. Langley, F. S. Hanson.

**Pennsylvania:** G. F. Sparhawk, P. L. Barker, H. B. Shattuck, M. G. Littlefield, W. L. Hutchinson, F. D. Sears, E. R. Cate, F. W. Newhall, Crosby Tappan, L. B. Smith, R. H. Peck, R. G. Knight, W. L. Smith.

**In or Within Fifty Miles of Philadelphia:** F. R. Davis, W. H. Ford, M. H. Hoyt, W. F. Kimball, F. S. Whitcomb.

**Philippine Islands:** Carroll Paul.



**Province of Quebec:** R. F. Hill.

**Puerto Rico:** C. L. Carpenter, H. T. Pierce.

**Rhode Island:** S. G. Walker, C. I. Peckham, E. T. Richards, F. E. Hanson.

**Saskatchewan:** Sherman Smith.

**South America:** H. B. Tabor (Buenos Aires), F. S. Weston (Brazil), F. A. Hatch (Santa Marta, Colombia).

**Tennessee:** J. W. Ash.

**Texas:** S. M. Wilcox, R. L. Libby.

**Unknown:** R. Hunter, A. L. True, F. N. Tinker, A. J. Wheeldon, J. E. Hansbury.

**Vermont:** A. E. Winslow, C. K. Hosford, G. A. Reed, H. C. Whitmore, J. O. Goodrich, R. T. Young, H. A. Campbell, C. M. Goodrich.

**Virginia and West Virginia:** H. R. Messer, J. J. Kerley.

**Washington, D. C.:** E. D. Hardy, A. B. Isley, A. T. Fowler, O. A. Mechlin, Reuben Hayes, L. C. Marshall.

**Washington State:** E. J. Johnson, S. J. Smith, L. M. Perkins, H. L. Muchemore, A. J. Ela.

**West Indies:** W. H. Balch, J. L. Mann (Santo Domingo City).

**Wisconsin:** M. O. Withey, H. G. Roby.

**Wyoming:** J. J. Marshall, John Walker, H. D. Comstock, V. W. Russell.

**Yucatan:** Vicente Molina (Merida).

# OCCUPATIONS OF THAYER SCHOOL MEN, BOTH IN THE PRESENT AND PAST, SHOWING LARGE AND NOTEWORTHY PARTICIPATION IN THE WORLD'S WORK

This exhibit is approximate; some having been engaged in two or more pursuits are counted more than once; but not all the individual service during the entire period of 38 years, nor all of the works on which they have been employed, are included.

## CIVIL ENGINEERS AND SURVEYORS

### BUILDING CONSTRUCTION, INCLUDING REINFORCED CONCRETE, POWER PLANTS, MILL CONSTRUCTION, ETC.

General practice: consulting and contracting, mill engineering, and power development (1 in Hawaii) - - -	29
Chief and asst. engrs. for contractors; managers - - -	14
Engrs. in charge of construction: including Harvard Stadium, Phelps Pub. Co.'s bldg., Springfield, Mass.; seven great warehouses for Bush Terminal Co., Brooklyn, N. Y.; Viaducts of Fla. E. Coast Ry., etc. - - -	36
Assts., instrumentmen, draftsmen, inspectors, etc. - - -	40
Surveyors and engineers, private practice - - -	16
U. S. Geol. Survey: topography, water resources, etc. - -	10

## BRIDGES AND OTHER FRAMED STRUCTURES OF IRON AND STEEL

Those concerned in the design, manufacture, or erection, as:	
Chief Engineers, Asst. Chief Engineers, Managers or Presidents of Companies; members of firms - - -	10
Sales or Contracting Engineers (one in Argentina, S. A.) -	4
Consulting and Contracting Engineers; Chief Draftsmen -	12
Designers, Estimators, and Draftsmen - - - - -	24
Resident Engineers in charge of erection of the following (among others) - - - - -	6
Kentucky and Indiana Bridge over the Ohio River;	
Fort Madison Bridge over the Mississippi River; Wabash Bridge, Terra Haute, Ind.; Thebes Bridge across Mississippi River; Poughkeepsie Bridge over Hudson	

River (reconstruction); Stock Exchange and other Steel Skeleton buildings, New York; Construction of South Side and West Side Elevated Railways, Chicago; Design and erection of structures for Dreamland Park, Coney Id.; Steel Work of Hudson Terminal Bldg., Bankers' Trust, Municipal Bldg., etc., New York City.

Responsibility for much of the work of design of the following structures:

The Sabula swing bridge; bridges erected on the Boston & Maine Ry. system during 18 years; one, as Asst. to the late Geo. S. Morison, participated in the design of several large bridges in the Mississippi Valley, the Bellefontaine, Cairo, Memphis bridge, etc.; one, as Prin. Asst. Engr., designed the steelwork of the great power houses for the Manhattan and Interborough Rapid Transit systems of New York City.

## RAILROADS AND TRANSPORTATION

Chief Engineer, Gen. Manager of Ry. systems	-	-	-	3
Div. Engrs., maintenance of way engrs., etc.	-	-	-	4
Res. Eng. and Asst. Engrs. Bridges and Bldgs. dept.	-	-	-	7
Locating Engrs. or chiefs of party on original survey	-	-	-	7
Engrs. in charge of construction, including contracting engr.				16

On the following works, among others:

Two tunnels on Penn Ry.; Bergen tunnel of the D. L. & W. Ry., Hoboken; new terminal station of D. L. & W. Ry., Hoboken; South Fork Extension of Penn. Ry.; round house and yards at Wall, Pa.; two-mile section of the Subway, New York City; Guantanamo & Western Ry., Cuba; Hopatcong cut-off, D. L. & W. Ry.; Chi., Mil. & St. Paul Ry., through Bitter Root Mts.; grade revision Cumberland Valley R. R. (Penn. System), design of reinforced concrete arches up to 100 ft. span; extensions of Northern Pacific Ry.; Madeira-Mamore Railway, Brazil; Philippine Rys., Negros, Cebu, Panay.

Asst. Engrs., Transitmen, etc., on surveys and construction				
Florida East Coast Railway, etc.	-	-	-	30
Rodmen and Draftsmen, Asst. Supervisors of track, etc.	-	-	-	14

## STATE AND MUNICIPAL ENGINEERS

State Engineer (1), Director Pub. Works San Domingo (1)	2
City Engineers and Surveyors - - - - -	7
Sanitary Engineer, State of Va. - - - - -	1
In charge of construction of highways and canals - - -	8
Draftsmen and general assistants - - - - -	28
Street pavements, contracting and constructing:	
Managers or chief engrs. and supts. - - - - -	4
Supts. of construction and foremen (past and present) -	25

## WATER WORKS. FILTRATION PLANTS

Superintendents, Washington, D. C., filtration plant, etc. -	3
New York Board of Water Supply Catskill Aqueduct:	
Chief Engineer for Contractor on Ashokan dam - -	1
Res. Eng. and Assts. in field or office - - - -	5
Supt. of Construction, Los Angeles and Portland Aqueducts	2
Asst. Engrs., Inspectors and Draftsmen - - - -	13

## CANALS. RIVER AND HARBOR WORK. GEODESY

Constructing Engrs. for contractors,—dry-docks, etc. - -	6
On breakwaters, Manzanillo, Mex., (2), Cuba (2), etc.	
U. S. Asst. Engrs., 11; Juniors, 6 (past and present) - -	17
Contractor or eng., harbor dredging, etc. - - - -	4
U. S. Coast and Geod. Survey:	
“Assistant” (Philippines, Alaska, transcontinental tri- angulation and precise levelling) Aids and deck officers,	
U. S. Lighthouse Service, Inspector (1) - - - -	10
Surveys for Nicaragua Canal - - - - -	4
Panama Canal: Res. Engr., Asst. Engrs., concrete work; instrumentmen, etc. - - - - -	
Civ. Engrs., U. S. Navy - - - - -	2

## IRRIGATION WORKS DEVELOPMENT

U. S. Reclamation Service:	
Supervising Engineer (1), Asst. Engrs. (8) - - -	9
Asst. Engr., in charge of all cement testing - - -	1

## OCCUPATIONS

83

Junior Engineers or "Surveymen" and draftsmen - - -	10
These have done laborious service on the following projects: Belle Fourche, Shoshone, Salt River (Roosevelt dam), Huntley, Laguna dam, Klamath, Pathfinder dam, Sun River, Blackfoot Ind. project, etc.	
Constructing Engineers, 3 in San Domingo and Porto Rico	5
Consulting and Contracting Engrs. - - - - -	5

## ENGINEERING EDUCATION, RESEARCH, OTHER BUSINESS

Professors of Civil Engineering and Instructors, of whom eleven are heads of departments; and assistants - -	28
Conducting researches in laboratories - - - - -	5
Electrical and Mechanical Engineering - - - - -	6
Mining and Metallurgy (two in Mexico lately, one now) -	4
Manufacturing, including iron works, lumber, paper mills and quarrying. Proprietors, members of firms or agents	16
Merchants (5), Farmers and Ranchmen (5) - - - -	10
Managers or Superintendents of power or light Cos., or both	3
Fire prevention engineering and insurance - - - -	9

## OTHER PROFESSIONS. LITERARY WORK

Astronomers (formerly one at Cordoba Observatory, Argentina, and one at Tokio, Japan, and U. S. Naval Observatory) - - - - -	2
Meteorologist and Forecaster, U. S. Weather Bureau - -	1
Professors of mathematics (Dean of College, 1) - - -	3
AUTHORS OF PAPERS OR REPORTS contributed to technical societies, journals, etc., or WRITERS OF TREATISES ON ENGINEERING SUBJECTS - - - - -	25
Ministry, pastors of churches or mgr Y. M. C. A.; teaching (2)	5
Inventors: Railroad specialties, 1; hydraulics, 1 - - -	2
Physician, 1; Lawyer, 1 - - - - -	2



THAYER SOCIETY OF ENGINEERS

OF

DARTMOUTH COLLEGE

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ORGANIZATION—MEMBERS—CONSTITUTION

AND

REPORT OF THE SECRETARY

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GENERAL LIST OF ALUMNI

OF

DARTMOUTH COLLEGE, AND CHANDLER SCIENTIFIC  
DEPARTMENT OF THE COLLEGE, WHO ARE,  
FOR THE MOST PART ENGAGED IN  
ENGINEERING PURSUITS

# THAYER SOCIETY OF ENGINEERS OF DARTMOUTH COLLEGE

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*President*, CHAS. H. NICHOLS '88

*Treasurer*, WM. C. PHELPS, '95

*Secretary*, GEO. C. STODDARD '81

215 W. 125th Street, New York City

## *Executive Committee:*

GEO. C. STODDARD '81

CHAS. H. NICHOLS '88

WM. C. PHELPS '95

A. C. TOZZER '03

F. H. MUNKELT '09

## *Advisory Board:*

ROBERT FLETCHER, *ex-officio*

WESLEY G. CARR '84	} Term expires January, 1913
PROF. A. W. FRENCH '92	
PROF. C. A. HOLDEN '01	

W. H. PRATT '74	} Term expires January, 1914
M. F. BROWN '98	
F. H. TROW '95	



## STATEMENT OF THE SECRETARY

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The Eighth Annual Meeting of the Thayer Society of Engineers of Dartmouth College was held at the rooms of the Dartmouth Club, 12 West 44th St., New York City, on the evening of January 16, 1912. A general reception was held between the hours of 6.30 and 7.30 P. M., followed by an informal dinner, which was attended by fifty-five members and guests of the Society; of the fifty-five who sat at the table, fifty-three were Dartmouth men, the largest meeting in the history of the Society. The College was represented by Prof. Robert Fletcher, director of the THAYER SCHOOL, and Prof. John Vose Hazen. The Society had as a special guest, Mr. Robert Brewster Stanton, Mem. Am. Soc. C. E.

At the conclusion of the dinner, President Melendy, Dartmouth College '85, who also acted as toastmaster, with some witticisms called the meeting to order. The secretary, Mr. Geo. C. Stoddard, read letters and telegrams of regret from Mr. J. J. Hopper, the first president of the Society; Mr. Thomas P. Kingsley; Prof. C. A. Holden, of Dartmouth College; Mr. H. H. Sears, of Sacramento, Cal.; Mr. J. P. Snow, of Boston, Mass., and Ernest Fox Nichols, president of Dartmouth College. A summary of the secretary's report is as follows:

The executive committee has held six meetings during the year. It sent out a circular, under date of July 20, 1911, through the treasurer, to all members of the Society, and a supplemental letter by the secretary to the alumni of the C. S. D. These letters met with a most hearty response. The Society has had a healthy growth during the past year, twenty-three names having been added to the membership, so that at the present time the Society numbers five honorary members and about two hundred and twenty-five active members. No good reason can be given why the Society should not have at least four hundred active members, and the secretary earnestly requests that each member try and bring one new member into the Society. During the past year the Society has lost two of its members by death: Mr. Robert H. Pearson, D. C. '07, who died January 4, 1911, and Mr. Richard Hazen, T. S. '09, who died August 13, 1911.

President Melendy then called upon Professor Fletcher, who brought a greeting from President Emeritus William J. Tucker. Professor Fletcher described in detail the architecture and construction of the THAYER SCHOOL's new home, showing how the plans had been realized, giving all that was hoped for. He paid a tribute to Mr. Allen Hazen for his gift of \$500 to help equip the laboratory, given as a memorial to his brother, Richard Hazen. He said that the THAYER SCHOOL keeps its aim to lay a firm and solid foundation of engineering fundamentals, so that its graduates can build upon it their structure of specialization or of general engineering. In closing he expressed his appreciation for the interest shown by all the members of the Society.

President Melendy then called upon Professor Hazen, who spoke of the work accomplished during the past year, and compared the college of the present day with that of the 70's; he said that the general trend of the college was to make the student study more and devote less time to the attractions and distractions of college life in Hanover.

The President then called upon Mr. Robert B. Stanton, Mem. Am. Soc. C. E., who talked very entertainingly and instructively of his experience as an engineer. The text of Mr. Stanton's remarks was the all-round engineer, in preference to the specialized engineer, not that the specialist did not have his place, but it was as advisory to the chief engineer.

Prof. A. W. French of the Worcester Polytechnic Institute made brief remarks regarding athletics in connection with a college course, and said that the success of the THAYER SCHOOL OF CIVIL ENGINEERING was due in a large measure to the personality of its professors.

Prof. John P. Brooks, director of the Clarkson Institute of Technology, Potsdam, N. Y., spoke of his course at Dartmouth, and of the steady advance in educational work along all lines; also that the engineers of today are more in demand than ever before; and congratulated the Director of the THAYER SCHOOL in always keeping the standard of the school at the top.

Prof. F. B. Sanborn of Tufts College impressed upon the minds of those present that no school is kept so well abreast of the times as the THAYER SCHOOL, which was due to the efforts of its Director, Professor Fletcher, and the professors working with him.

Mr. E. J. Morrison spoke of his experiences while a student of the THAYER SCHOOL, and the strenuous times he had in keeping even at a "looking" distance of his degree.

Mr. Otis E. Hovey, an overseer of the THAYER SCHOOL, made remarks on the new quarters of the school, saying that the new building was large enough to accommodate an increase of students, up to 100 per cent.

The tellers then reported the canvass of the ballots as on page 86.

The newly elected executive committee afterwards announced the officers for the ensuing year.

After adjournment the reunion was continued another hour or more in the rooms of the Dartmouth Club, to which a vote of thanks was given for their courteous hospitality.

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### TREASURER'S REPORT FOR ANNUAL MEETING FOR FISCAL YEAR, ENDING JANUARY 16, 1912

#### RECEIPTS

Cash balance in bank, January 18, 1911	\$14.27
Collections from new membership fees	21.00
Collections from annual dues	204.36
Collections from subscriptions and pledges	1,179.00
Total	<u>\$1,418.63</u>

#### DISBURSEMENTS

##### General Expense:

Printing and stationery	\$28.20
Postage	24.29
Exchange on checks	1.20
	<u>\$53.69</u>

##### The Annual:

Circulars and clerical work	\$13.40
Postage and express	35.32
Printing and binding	306.85
	<u>355.57</u>

##### Thayer Fund:

Appropriation for 1911-12	1,000.00
Cash balance, January 17, 1912	9.37

Total	<u>\$1,418.63</u>
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(Signed) W. C. PHELPS, *Treasurer*

Audited and found correct:

A. C. TOZZER, *Auditor*

January 16, 1912

## LIST OF MEMBERS

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CHARTER MEMBERS ARE INDICATED BY †

T. S. indicates Thayer School men; more complete information on preceding pages. C. S. D. indicates men of the Chandler Scientific School or Scientific Course of Dartmouth College. D. C. indicates Dartmouth College. N. H. C. indicates New Hampshire College A. and M. A.

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### HONORARY MEMBERS

Ernest F. Nichols, D.Sc.,  
Hanover, N. H.

Henry L. Abbott, LL.D.,  
23 Berkeley St., Cambridge, Mass.

Gustav J. Fieberger,  
U. S. Mil. Academy, West Point, N. Y.

Prof. Robert Fletcher, Ph.D., Mil. Academy 1868,  
Hanover, N. H.

William J. Tucker, D.D., LL.D., D. C. '61,  
Hanover, N. H.

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Herman E. Abbott, T. S. '93,  
Passaic Water Co., Paterson, N. J.

Arthur A. Adams, T. S. '95,  
78 Westminster St., Springfield, Mass.

Frank E. Allard, M.D., C. S. D. '85,  
373 Commonwealth Ave., Boston, Mass.

Henry W. Allen, C. S. D. '80,  
20 Market St., Manchester, N. H.

D. H. Andrews, C. S. D. '69,  
47 Winter St., Boston, Mass.

J. G. Andrews, T. S. '02,  
284 Franklin St., Newton, Mass.

†John W. Ash, T. S. of '01,  
Austell, Ga.

Henry H. Austin, C. S. D. '85,  
Wellesley College, Wellesley, Mass.

†James L. Averill, T. S. '98,  
Hamilton & Chambers, 29 Broadway, New York City.

- Benjamin Ayer, T. S. '10,  
Monatiquot Rubber Works, So. Braintree, Mass.
- G. F. Baine, T. S. '09,  
Care Asst. Eng., Mo. Pac. Ry., Atchison, Kansas.
- William H. Balch, T. S. '98,  
Santo Domingo City, Dominican Republic.
- †George P. Bard, C. S. D. '89,  
40 Burchard Ave., East Orange, N. J.
- †Percy L. Barker, T. S. '94,  
Jersey Shore, Pa.
- Arthur B. Barnes, T. S. '09,  
Barnaby Mfg. Co., Fall River, Mass.
- Samuel C. Bartlett, T. S. '08,  
Hastings Pavement Co., 25 Broad St., New York; or Hanover,  
N. H.
- Sidney C. Beane, T. S. '12,  
Aberthaw Construction Co., 8 Beacon St., Boston, Mass.
- Fred S. Berry, C. S. D. '88,  
Blairstown, N. J.
- J. J. Boynton, T. S. '12,  
Harlem Contracting Co., 2 Rector St., New York City.
- †Daniel E. Bradley, T. S. '85,  
Berlin, Conn.
- Delmont R. Bradley, T. S. '10,  
With Geo. F. Hardy, 309 Broadway, New York City.
- George F. Brooks, C. S. D. '81,  
Missoula, Mont.
- John P. Brooks, C. S. D. '85,  
Clarkson Institute, Potsdam, N. Y.
- Maurice F. Brown, T. S. '98,  
47 Winter St., Boston, Mass.
- Ralph H. Brown, T. S. '85,  
Eastern Bridge and Structural Co., Worcester, Mass.
- Arthur L. Buxton, T. S. '10,  
108 Dartmouth St., Springfield, Mass.
- Herbert H. Callman, D. C. '04,  
H. Howard & Co., 9 Mott Ave., Far Rockaway, N. Y.
- J. P. Canty, C. S. D. '90,  
B. & M. Ry., Fitchburg, Mass.
- C. L. Carpenter, T. S. '89,  
Andover, Mass., or Central Aguirre, Porto Rico.
- Wesley G. Carr, C. S. D. '84,  
P. O. Box 911, Pittsburg, Pa.
- John A. Cassidy, T. S. '11,  
931 Gates Ave., Brooklyn, N. Y.

- †Edgar R. Cate, T. S. '01,  
Care Westinghouse, Church, Kerr & Co., 10 Bridge St.,  
New York City.
- †Charles F. Chase, D. C. '89,  
New Britain, Conn.
- Edward S. Chase, D. C. '89,  
Penn. R. R., Pier K, Jersey City, N. J.
- †Amasa B. Clark, T. S. '90,  
225 Fifth Ave., New York City.
- Charles W. Coffin, C. S. D. '64,  
173 Broadway, Bangor, Maine.
- George R. Colson, T. S. '06,  
Babylon, N. Y., So. Shore Traction Co., or N. Billerica, Mass.
- Walter A. Conley, T. S. '06,  
Am. Bridge Co., 30 Church St., New York City.
- Frank G. Cook, T. S. '10,  
N. P. R. R., Asst. Eng., Dakota Div., Jamestown, N. D.
- R. E. Cox, C. S. D. '92,  
Box 1020, Rawlins, Wyo.
- Frederick H. Crafts, D. C. '75,  
97 Glendale Park, Rochester, N. Y.
- †Frank E. Cudworth, T. S. '02,  
With Holbrook, Cabot & Rollins, 331 Madison Ave., New York  
City.
- J. T. Cunningham, C. S. D. '87,  
71 Broadway, New York City.
- †Carroll W. Davis, T. S. '03,  
Civ. Eng., Corning, Tehama Co., California.
- †Edwin R. Davis, T. S. '96,  
Florida E. Coast Ry., Marathon, Fla.
- Fred R. Davis, T. S. '95,  
810 Denckla Bldg., Philadelphia, Pa., or Goffstown, N. H.
- Addison L. Day, C. S. D. '70,  
Merchants Laclede Bldg., St. Louis, Mo.
- Royal B. Doane, T. S. '03,  
44 Union Hall St., Jamaica, L. I., N. Y.
- John F. Doonan, T. S. of '05.  
Hotel Miller, Gt. Barrington, Mass., or Greenville, N. H.
- P. S. Dow, T. S. '11,  
Instructor Dartmouth College; also Knoxville, Tenn.
- Joseph N. Drew, C. S. D. '82,  
Sarasota, Florida.
- Arthur W. Dudley, C. S. D. '67,  
936 Elm St., Manchester, N. H.

- Benjamin H. Dudley, T. S. '10,  
220 No. James St., Rome, N. Y.
- J. H. Dunlap, T. S. '08,  
311 Brown St., Iowa City, Iowa.
- Frank H. Eastman, D. C. '06,  
Merrill Ruckgaber Co., 50 Church St., New York City.
- John R. Eastman, C. S. D. '62,  
Andover, N. H.
- Whitney H. Eastman, T. S. '11,  
Midland Linseed Oil Products Co., Edgewater, N. J.
- Andrew W. Edson, D. C. '78,  
Park Ave. and 59th St., New York City.
- Willard W. Eggleston, C. S. D. '91,  
Dept. Agri., Bureau Plant Indians, Washington, D. C.
- Arthur J. Ela, T. S. '08,  
U. S. Lighthouse Service, Ketchikan, Alaska.
- C. E. Ellsworth, D. C. '07,  
Wentworth, N. H.
- Prof. Charles F. Emerson, D. C. '68,  
Hanover, N. H.
- Shepley Wilson Evans,  
14 So. Broad St., Philadelphia, Pa.
- †Leslie B. Farr, T. S. '03,  
2 Rector St., New York City.
- Hardy S. Ferguson, T. S. '91,  
Consult. Engr., 200 Fifth Ave., New York City.
- Harry W. Fitts, T. S. of '03,  
79 Pembroke St., Newton, Mass., or 110 State St., Boston.
- Thomas Flynn, T. S. of '89,  
511 E. 134th St., New York City.
- †William H. Ford, T. S. '95,  
1024 Arcade Bldg., Philadelphia, Pa.
- Alvah T. Fowler, T. S. '01,  
117 Center St., Concord, N. H.
- †Arthur W. French, T. S. '92,  
Worcester Polytechnic Inst., Worcester, Mass.
- Charles A. French, C. S. D. '93,  
City Engineer's Office, Laconia, N. H.
- John French, D. C. '86,  
59 Wall St., New York City.
- Eliphalet B. Gage, C. S. D. '58,  
Hermosa Beach, California.
- Jos. B. Gerould, M.D., C. S. D. '78,  
122 High St., No. Attleboro, Mass.

- Jasper M. Gibson, T. S. of '01,  
Mulcahy & Gibson, Contractors, 381 4th Ave., New York City.
- Ray T. Gile, T. S. '79,  
61 Pleasant St., Littleton, N. H.
- C. M. Goddard, C. S. D. '77,  
141 Milk St., Boston, Mass.
- Charles F. Goodrich, T. S. '06,  
Am. Bridge Co., 30 Church St., New York.
- Robert R. Gould, T. S. '10,  
527 Tinton Ave., New York City.
- †Albert H. Greenwood, T. S. '00,  
39 Capen St., Hartford, Conn.
- James W. Hale, C. S. D. '81,  
281 High St., Newburyport, Mass.
- Arthur W. Hardy, T. S. '89,  
431 South Dearborn St., Chicago, Ill.
- Edward D. Hardy, T. S. '91,  
Filtration Plant, Washington, D. C.
- George F. Hardy, C. S. D. '88,  
309 Broadway, New York City.
- Arthur W. Hare, T. S. of '03,  
Care Norcross Bros. Co., Worcester, Mass.
- Reuben Hayes, T. S. '08,  
Southern Ry., 1300 Pennsylvania Ave., Washington, D. C.
- Allen Hazen, N. H. C. '85,  
103 Park Ave., New York City.
- †Prof. John V. Hazen, T. S. '76,  
Hanover, N. H.
- Ralph W. Hazen, D. C. '08,  
U. S. Reclamation Service, Browning, Mont.
- William N. Hazen, T. S. '90,  
Am. Concrete Steel Co., Union Bldg., Newark, N. J.
- Charles W. Healey, C. S. D. '81,  
Exeter, N. H.
- Fred C. Heilge, C. S. D. '87,  
Care Westinghouse, Church, Kerr & Co., 10 Bridge St.,  
New York City.
- David M. Hildreth, '87,  
131 12th St., N. E., Washington, D. C.
- Harry C. Hill, T. S. '03,  
Care Lane Construction Corporation, Meriden, Conn.
- John B. Hodgdon, C. S. D. '85,  
2101 Wall St., Joplin, Mo.
- †Prof. Charles A. Holden, T. S. '01,  
Hanover, N. H.



- William Hood, C. S. D. '67,  
1136 James Flood Bldg., San Francisco, California.
- †John J. Hopper, T. S. '85.  
215 West 125th St., New York City.
- Alfred A. Hormel, T. S. '12,  
41 M St., So. Boston, Mass.
- C. K. Hosford, T. S. '03,  
North Thetford, Vt.
- †Otis E. Hovey, T. S. '89.  
Care Am. Bridge Co., 30 Church St., New York City.
- Edgar H. Hunter, T. S. '02,  
Hanover, N. H.
- Fred J. Hutchinson, C. S. D. '78,  
1037 River St., Hyde Park District, Boston, Mass.
- †George H. Hutchinson, T. S. '84,  
Northwest Fuel Co., St. Paul, Minn.
- Arthur B. Ilsley, T. S. '95,  
Southern Ry., 1300 Penn. Ave., Washington, D. C.
- James W. Ingalls, D. C. '10; T. S. '11,  
76 Baker St., Lynn, Mass.
- John Y. Jewett, T. S. '95,  
408 Commonwealth Building, Denver, Colo.
- Edward J. Johnson, T. S. of '97,  
219 Lindelle Bldg., Spokane, Wash.
- J. Howard Johnston, C. S. D. '70,  
Care Morgan, Hargis & Cie, 31 Boulevard Haussmann, Paris,  
France.
- Sydney E. Junkins, D. C. '87,  
10 Bridge St., New York City.
- Walter Stewart Kelly, C. S. D. '82,  
4 Marion Terrace, Brookline, Mass.
- B. A. Kimball, D. C. '54,  
Concord, N. H.
- W. F. Kimball, T. S. '12,  
30 Lee St., Cambridge, Mass.
- W. R. Kimball, D. C. '07,  
454 No. Grove Ave., Oak Park, Ill.
- T. P. Kinsley, C. S. D. '66,  
New Paltz; New York.
- Edward H. Kitfield, C. S. D. '81,  
201 Devonshire St., Boston, Mass.
- R. G. Knight, T. S. '09,  
P. O. Box 603, State College, Pa.
- C. H. Larimer, C. S. D. '85,  
53 State St., Boston, Mass.

- †Maurice J. Leahy, T. S. '03,  
Care of George F. Hardy, 309 Broadway, New York City.
- John H. Letteney, T. S. '96,  
101 Tremont St., Boston, Mass.
- E. A. Lincoln, T. S. '09,  
457 June St., Fall River, Mass.
- A. L. Livermore, D. C. '88,  
30 Broad St., New York City.
- C. E. Locke, T. S. '12,  
Turner Construction Co., 312 Prudential Bldg., Buffalo, N. Y.
- Samuel J. Lord, T. S. '96,  
City Engineer's Office, Manchester, N. H.
- C. A. Luck, D. C. '08,  
840 Ohio Bldg., Toledo, Ohio.
- John W. Mair, T. S. '04,  
100 W. Lincoln Ave., Mt. Vernon, N. Y.
- †John L. Mann, T. S. '98,  
Santo Domingo City, Dominican Republic.
- †William F. Mann, C. S. D. '90,  
1000 Boylston St., Boston, Mass.
- William H. G. Mann, C. S. D. '93,  
95 No. Main St., Penacook, N. H.
- Raymond R. Marsden, T. S. '09,  
Care H. S. Ferguson, 200 Fifth Ave., New York City.
- Francis B. Marsh, T. S. '02,  
Board of Water Supply, 165 Broadway, New York City.
- John J. Marshall, T. S. '85,  
Basin, Wyo.
- Geo. I. McAllister, C. S. D. '77,  
325 The Kennard, Manchester, N. H.
- Samuel A. McCoy, T. S. '97,  
603 German Life Bldg., St. Paul, Minn.
- †George J. McIndoe, T. S. '96,  
Hastings Pavement Co., 25 Broad St., New York City.
- †John A. McNicol, T. S. '82,  
Care of Snare & Triest, Box 733, Havana, Cuba.
- George E. Melendy, C. S. D. '85,  
204 Center St., Orange N. J.
- Henry Melville, D. C. '79,  
45 Cedar St., New York City.
- Joseph F. Moore, D. C. '83,  
311 Nicolet Ave., Minneapolis, Minn.
- †Edwin J. Morrison, T. S. '93,  
Hastings Pavement Co., 25 Broad St., New York City.

- Harrie L. Muchemore, T. S. '06,  
Box 797, Bremerton, Wash.
- Frederick Herman Munkelt, T. S. '09,  
Am. Bridge Co., 30 Church St., New York City.
- Frank W. Newhall, T. S. '02.  
Republic, Fayette Co., Pa.
- †Charles H. Nichols, T. S. '88,  
45 East 42d St., New York City.
- George H. Nolan, T. S. '00,  
With Snare & Triest Co., Havana, Cuba, Box 733.
- Ralph W. Noyes, T. S. '11,  
With Stone & Webster Corporation, Boston, Mass.
- Luther S. Oakes, T. S. '00,  
801 Globe Bldg., Minneapolis, Minn.
- Robert E. Parker, T. S. '11,  
55 Walnut St., Reading, Mass.
- Frank N. Parsons, D. C. '74,  
Franklin, N. H.
- †Henry M. Paul, T. S. '75,  
U. S. Naval Academy, Annapolis, Md.
- John W. Pearson, C. S. D. '83,  
Room 467, South Station, Boston, Mass.
- R. H. Peck, T. S. '08,  
Palmerton, Penn.
- Geo. E. Pender, M.D., C. S. D. '93,  
83 Merrimac St., Portsmouth, N. H.
- Wesley W. Phelps, C. S. D. '81,  
343 So. Hill St., Los Angeles, Cal.
- †William C. Phelps, T. S. '95,  
Room 1026 A, Rapid Trans. Construc. Co., 165 Broadway,  
New York City.
- Harold E. Plumer, T. S. '03.  
With Turner Construction Co., 312 Prudential Bldg., Buffalo,  
N. Y.
- Henry G. Porter, D. C. '06,  
Care Hazen & Whipple, 103 Park Ave., New York City.
- John E. Porter, T. S. '03,  
6 Ashburton Pl., Yonkers, N. Y.
- John F. Pratt, C. S. D. '71,  
U. S. C. and G. Survey, Washington, D. C.
- †William H. Pratt, C. S. '74,  
50 Wabansia Ave., Chicago, Ill.
- T. R. Remsen, T. S. of '03,  
With George F. Hardy, 309 Broadway, New York City.

- Frank J. Reynolds, C. S. D '89,  
Care Gen. Elec. Co., 30 Church St., New York City.
- E. T. Richards, T. S. '09,  
22 Mason St., Pawtucket, R. I.
- C. P. Richardson, T. S. '09,  
235 W. 61st Place, Chicago, Ill.
- Harold S. Richmond, T. S. '03,  
Hartsdale, N. Y., or Northfield, Vt.
- †Wilfred C. Risley, T. S. '01,  
Box 2, Sydney, Nova Scotia, Canada.
- Fletcher Rogers, T. S. '11,  
Hastings Pavement Co., New York. Res. Demarest, N. J.
- H. L. Ropes, T. S. '04,  
154 Winslow St., Watertown, N. Y.
- †Warren F. Rugg, T. S. '02,  
767 Elm St., Peekskill, N. Y.
- Arthur V. Ruggles, D. C. '02,  
360 East 207th St., New York City.
- Edward F. Ruggles, C. S. D. '94,  
Md. Geol. Survey, N. Howard St., Baltimore, Md.
- Sydney Lee Ruggles, T. S. '09,  
Hanover, N. H.
- Verney W. Russell, T. S. '07,  
Shoshone Dam, U. S. Reclamation Service, Cody, Wyo.
- Alva B. Rutherford, D. C. '08,  
840 Ohio Bldg., Toledo, Ohio.
- Frank B. Sanborn, T. S. '89,  
Tufts College, Mass.
- †Hiram N. Savage, T. S. '90,  
U. S. Reclamation Service, Helena, Mont., or  
Care of Chief Engr., U. S. Recl. Service, Washington, D. C.
- Frederick E. Schilling, D. C. '08,  
Turner Construction Co., 11 Broadway, New York City.
- Horace H. Sears, D. C. '00,  
City Engr., Redwood City, San Mateo Co., California.
- W. T. Shaw, T. S. '06,  
Hill, N. H. Perm. Middleboro, Mass.
- F. E. Shedd, C. S. D. '80,  
93 Federal St., Boston, Mass.
- Ralph A. Sherwin, T. S., 1911,  
16 Summit St., Orange, Mass.
- William M. Silleck, D. C. '07,  
Geo. H. Fuller Co., 111 Broadway, New York City.
- Albert Smith, T. S. '03,  
Purdue Univ., Lafayette, Ind., 1022 Seventh St., West.

- Arthur W. Smith, N. H. C. '95,  
1008 Oakland Ave., Ann Arbor, Mich.
- Lyndon A. Smith, D. C. '80,  
Capitol, St. Paul, Minn.
- L. B. Smith, T. S. '06,  
5447 Stanton Ave., Pittsburg, Pa.
- †Jonathan P. Snow, T. S. '75,  
Consulting Engr., 18 Tremont St., Boston, Mass.
- William P. Snow, C. S. D. '81,  
93 Federal St., Boston, Mass.
- Chas. R. Spalding, C. S. D. '88,  
215 Dearborn St., Chicago, Ill.
- George F. Sparhawk, T. S. '91,  
American Bridge Co., Ambridge, Penn.
- Parker Spofford, C. S. D. '65,  
Bucksport, Me.
- John F. Springfield, T. S. '86,  
United Wate, Gas & Electric Co., Hutchinson, Kansas.
- George M. Stafford, C. S. D. '81,  
804 Burton Ave., Helena, Mont.
- William E. Stanley, C. S. D. '91,  
31 Milk St., Boston, Mass.
- Fred C. Stanton, T. S. '03,  
Asst. Engr. Atlantic Div. Panama Canal, Cristobal, C. Z.
- Everett M. Stevens, T. S. '02,  
Pres. Nashua Granite Co., 254 Main St., Nashua, N. H.
- P. W. Stickney, T. S. '09,  
901 1st St. North, Fargo, N. D.
- †George C. Stoddard, C. S. '81,  
215 West 125th St., New York City.
- Arthur W. Stone, T. S. '96,  
Care of William Bradley & Son, Long Id. City, or  
Hartford, Vt.
- Edw. M. Stone, T. S. '94,  
49 Pearl St., Hartford, Conn.
- Jas. H. Stone, T. S. '09,  
City Eng'r, Franklin, N. H.
- Franklin H. Stowell, T. S. '05,  
Chicago, Ill., 1200 Tribune Bldg.
- Chester A. Studwell, T. S. of '03,  
Village Eng'r, Port Chester, N. Y.
- Henry A. Symonds, T. S. '94,  
174 Lexington St., Waverly, Mass.
- Hugh B. Tabor, T. S. '97,  
544 Bartolome Mitre, Buenos Aires, Argentine, S. A.
- Crosby Tappan, T. S. '05,  
Glen Apartments, Chambersburg, Pa.

- P. L. Thompson, T. S. '09,  
Care Hastings Pav. Co., 25 Broad St., New York City.
- Arthur C. Tozzer, T. S. '03,  
Care Turner Const. Co., 11 Broadway, New York City.
- Frank H. Trow, T. S. '95,  
Chief Eng'r Winston & Co., Ashokan Reservoir, Browns  
Station, N. Y.
- Albert L. True, T. S. '02,  
Lancaster, Mass. (Missing since March, 1906.)
- Lucius E. Varney, D. C. '99,  
149 Broadway, New York City.
- Geo. W. Wales, C. S. D. '86,  
Manchester, N. H.
- John Walker, T. S. '03,  
Union Pacific Ry., 522 West 21st St., Cheyenne, Wyo.
- Sidney G. Walker, T. S. '93,  
815 Grosvenor Bldg., Providence, R. I.
- Edward B. Wardle, T. S. '00,  
Engr. for George F. Hardy, 309 Broadway, New York City.
- †Herbert L. Watson, T. S. '00,  
201 Ellsworth Ave., New Haven, Conn.
- Leslie Wead, C. S. D. '72,  
35 Congress St., Boston, Mass
- F. W. Welch, T. S. '08,  
Spirit Lake, Idaho.
- Harry A. Wells, T. S. '11,  
5 West 125th St., New York City.
- †Benjamin F. Welton, T. S. of '95,  
Commissioner of Accounts, 280 Broadway, New York City.
- Fred W. Wentworth, C. S. D. '87,  
Citizens' Trust Bldg., Paterson, N. J.
- Russell A. Wentworth, C. S. D. '79,  
100 Ross St., Batavia, N. Y.
- Fred S. Weston, T. S. '09,  
Madeira-Mamore Ry., Porto Velho, Amazonas, Brazil.
- F. L. Wheaton, T. S. '86,  
Andover, N. J., D. L. & W. R. R., or  
85 So. Arlington Ave. E., Orange, N. J.
- Bertrand T. Wheeler, C. S. D '84,  
Room 440, South Station, Boston, Mass.
- Earl F. Whitaker, T. S. of '02,  
7815 4th Ave., Brooklyn, N. Y.
- F. S. Whitcomb, T. S. '12,  
2 Belmont St., Lowell, Mass.
- Thomas T. Whittier, T. S. '00,  
Care of George F. Hardy, Mill Engineer, 309 Broadway,  
New York City.
- †Philip H. Winchester, T. S. '00,  
303 Ten Eyck St., Watertown, N. Y.
- W. C. Winkley, T. S. '09,  
7 W. Concord St., Dover, N. H.

- Morton O. Withey, T. S. '05,  
University of Wisconsin, Madison, Wis.  
George P. Wood, T. S. '90,  
217 Walnut St., Peekskill, N. Y.  
Carl B. Worthen, T. S. '04,  
Supposed to be in Hawaii.  
R. T. Young, T. S. '12,  
Littleton, N. H.
- 

**New Members:**—The Secretary reports 24 new members, September 10, 1912; and more expected.

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#### DECEASED MEMBERS

- Mart A. Beal, C. S. D., 1880. Died March 12, 1910.  
Richard Hazen, T. S., 1909. Died August 13, 1911.  
Schiller Hosford, D. C., 1866. Died  
George I. Leland, C. S. D., 1884. Died May 16, 1912.  
Robert H. Pearson, T. S., of 1908. Died January 4, 1912.  
William H. Puffer, T. S., 1892. Died March 17, 1912.  
Robert L. Read, C. S. D., 1864. Died June 29, 1912.  
Ralph S. Soper, T. S., 1904. Died June 16, 1910.  
Charles H. Treat, C. S. D., 1865. Died May 31, 1910.
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#### ADDENDA

The following names of new members (Sept. 25) should be inserted:—

- Frederic Danforth, C. S. D. '70,  
29 Pleasant St., Gardiner, Me.  
E. S. Holmes, C. S. D. '90,  
500 So. Clinton St., Chicago, Ill.  
Charles F. McCarthy, C. S. D. '88,  
Naugatuck, Conn.

#### CHANGED ADDRESS

- T. P. Kinsley,  
185 Audubon Ave., New York City.

## ORGANIZATION AND RESULTS

The Thayer Society of Engineers of Dartmouth College, having been instituted at a meeting held at the Murray Hill Hotel, New York City, December 15, 1903, is the outcome of several informal assemblies of former students of the THAYER SCHOOL OF CIVIL ENGINEERING and the Chandler School of Science and Arts of Dartmouth College, whose collegiate, social, and professional interests are closely interwoven; and who are still concerned for the welfare and needs of the Engineering Department of the College. Officers and former students of any and all departments of Dartmouth College are eligible to membership. A note to the secretary will suffice to secure proposal, and the procedure thereafter is simple.

The work and place of the Society are becoming better understood, as its years increase. That the advantages and privileges of membership are being appreciated is made manifest by the steady growth from year to year. The purposes of the Society, as set forth in the Constitution, are being realized beyond expectations. It is believed that in the course of a few years, the objects and aims which the Society has set before it will be realized in even larger measure.

The hearty coöperation with and support of the Executive Committee and the Board of Overseers of the School, in urging the needs of the THAYER SCHOOL upon the attention of the Trustees of the College, has resulted in securing a habitat for the School adequate for the next fifty years, and on a site worthy of the history and accomplishment of the Institution.



# CONSTITUTION

## I. NAME AND PURPOSE

1. The name of this voluntary association shall be Thayer Society of Engineers, of Dartmouth College.

2. Its object is to further the interests of the Thayer School of Civil Engineering; to promote social intercourse among its members, and to keep them informed as concerns the work and needs of said school.

## II. MEMBERSHIP

1. There shall be eligible for membership in this Society, (a) former students in the Thayer School of Civil Engineering, (b) graduates of the Chandler Scientific Department of Dartmouth College, who graduated prior to the year 1894, and (c) officers of, or former students in any or all departments of Dartmouth College, not described in (a) or (b), whose eligibility shall have been certified by an affirmative vote of the Executive Committee taken previous to any action on the part of that Committee, under Section 4 of Article II of this Constitution, and affecting the person whose eligibility it is sought to determine under this clause (c).

2. A person may become an honorary member of the Society by a unanimous vote of the Advisory Board and Executive Committee. For the purposes of such a vote, said bodies may act separately or as a unit. Letter ballots may be sent to the Secretary.

3. Members and Honorary Members shall be eligible for election to the Advisory Board. Members only shall be eligible for election to the Executive Committee.

4. The Executive Committee shall vote on the admission of such persons as shall have been proposed by a member or members of the Society. The name of the person proposed, together with that of his proposer, shall be entered in a book kept for that purpose, before the Executive Committee proceeds to vote on the admission of that person.

5. Notice of election may be given either to the person elected or to his proposer. If the payment of the membership fee is not made within three months of the date of notice of election, the election shall be void.

6. The membership fee shall be one dollar.
7. Annual dues shall be one dollar, payable in advance.
8. Honorary members shall have all the rights and privileges of members which are not inconsistent with Article II of this Constitution.

### III. EXECUTIVE COMMITTEE

1. The conduct of the Society's affairs shall be confided to a committee of five of its members, to be known as the Executive Committee.
2. The Executive Committee shall have power to fill any vacancy in their number until the next Annual Meeting of the Society.
3. The Executive Committee shall have the power to elect, annually, from their number a President, a Secretary, and a Treasurer, of the Society; they shall also have the power to remove and replace the same. Members of the Executive Committee shall hold office until their successors are elected.
4. The Executive Committee shall have power to make rules for their own government. An affirmative vote of a majority of all the members of the Executive Committee shall be necessary to amend the rules made by that committee.
5. The Executive Committee shall have power to admit members by ballot, one adverse ballot excluding. The vote upon the admission of a proposed member may be reconsidered and a second ballot taken at the same meeting at which such vote was taken, upon motion of any member of the committee. If such a vote is to be reconsidered at a later meeting, ten days' notice must be given to each member of the committee.
6. The Executive Committee shall have power to call special meetings of the Society.

### IV. OFFICERS

1. The President shall preside at all meetings of the Society and of the Executive Committee. In his absence, a presiding officer may be elected.
2. The Treasurer shall keep the Society's accounts, receive and disburse moneys, and make a report, annually, to the Society.
3. The Secretary shall keep a record of the meetings of the Society and of the Executive Committee; also a record of the names and addresses of members.

4. The officers shall have such other powers and duties as may be prescribed by the Constitution or by the Executive Committee.

## V. ADVISORY BOARD

1. An Advisory Board of seven members, three of whom shall be elected at each annual meeting, after the first election (at which six shall be elected in classes of three), shall have the power to indicate lines of work or investigation to the Executive Committee, which shall adopt and pursue any definite policy set forth in a written statement signed by not less than five members of the Advisory Board. The Director of the Thayer School of Civil Engineering shall be a member, *ex-officio*, of the Advisory Board.

2. No person shall be at one time a member of the Advisory Board and of the Executive Committee.

3. No member residing in the City of New York or within fifty miles of the same shall be eligible for membership in the Advisory Board.

4. The organization of the Advisory Board shall be wholly within the power of that Board.

## VI. ANNUAL MEETING

1. The Annual Meeting of the Society shall be held in the month of January in the City of New York; the first Annual Meeting shall be held in the month of January, 1905.

2. There shall be mailed to each member, at least ten days before the Annual Meeting, a notice of the meeting, together with copies of all lists of nominations received by the Executive Committee prior to the fifteenth day of December.

3. Any member residing at a distance of more than fifty miles from the City of New York may vote by letter ballot.

4. As soon as the Annual Meeting is organized, the presiding officer shall appoint three Tellers to receive and canvass the vote.

5. The Secretary shall turn over to the Tellers all letter ballots received.

6. A voter of a letter ballot, if present at the Annual Meeting, may withdraw such ballot at any time previous to the commencement of voting, on the part of such members as are present; he may then vote with the members present.

7. The vote for members of the Advisory Board and of the Executive Committee shall be by ballot. On the ballots the names of

those persons voted for to become members of the Advisory Board shall be separated from the names of those voted for to become members of the Executive Committee. A ballot may contain names not included in any list of nominations. All names voted by a member shall be on one ballot. A ballot containing names in excess of the number of members to be elected shall be rejected by the Tellers.

8. As soon as the canvass is completed, the Tellers shall report the result of the balloting to the presiding officer, who, thereupon, shall declare the vote.

9. Those persons receiving the five highest numbers of votes cast for members of the Executive Committee shall be declared elected to membership in that Committee. Membership in the Advisory Board shall be determined and declared in a similar manner.

10. In case of a tie vote, the members present, by a majority vote shall choose one of the candidates who by reason of the tie vote failed of election on the first ballot.

11. No voting by proxy shall be permitted.

12. Twenty members shall constitute a quorum at any meeting of the Society. If no quorum be present, the presiding officer shall adjourn the meeting to some other day.

## VII. AMENDMENTS

The Constitution of this Society may be amended at any Annual Meeting or at any Special Meeting called for that purpose, by a two-thirds vote in the affirmative, a quorum being present and voting.

## NAMES AND ADDRESSES OF ALUMNI

MEN OF DARTMOUTH IN PURSUITS MORE OR LESS RELATED TO ENGINEERING,—MANUFACTURE, ADMINISTRATION, RAILROADS, ETC.

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### ARRANGED IN CHRONOLOGICAL ORDER

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CHANDLER SCIENTIFIC DEPARTMENT OF DARTMOUTH COLLEGE. Unless otherwise indicated, all alumni up to and including the year 1870 are graduates of the Chandler Scientific School, as it was then known. After 1870 such graduates are indicated by C. S. D., up to 1894.

C. S., indicates Chandler Scientific Course of the College after 1894.

D. C., Dartmouth College, Academic Course.

N. H. C., New Hampshire College of Agriculture and Mechanic Arts.

N. U., Norwich University.

M. C., Middlebury College.

†Indicates Member of the Thayer Society of Engineers of Dartmouth College.

\*Indicates that reply was made to the circular or the card sent out by the Secretary of the Thayer Society.

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\*†Benjamin A. Kimball '54, B.S., A.M. Manufacturer and Engineer Railroad Manager. Pres. C. & M. R. R. Pres. Mechanics Nat. Bank and other corporations. Memb. Amer. Social Science Assoc. Active member New Hampshire Historical Society. Trustee Dartmouth College. Concord, N. H. Class Secretary and Treasurer.

Orrin F. Brooks '55, B.S. Teacher (retired). 200 Belmont St., Brockton, Mass.

Joseph S. Howe '55. Civil Engineer. Member both branches of Massachusetts Legislature. Town Clerk, Treas., and Collector since 1877. Methuen, Mass.

Simon R. Marston '55, B.S. Civil Engineer (retired). 1st Lieutenant 10th N. H. Vols. Maj. and Addl. Paymr. U. S. A. Brev. Lieut. Col. U. S. Vols. 46 State St., Portsmouth, N. H.

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## ADDENDA

### Information received after the printing

A. T. Fowler (1901) writes under date of September 19 from Buhl, Idaho, that he has recently made a profile survey of Metolius River, Oregon, and was then making a profile survey of about 250 miles of the Snake River between Minidoka and Warm Springs Ferry, Idaho. He expects to leave the United States about January 1, 1913, to take charge of the engineering work on the Hawaiian Islands. Address Care of U. S. Geological Survey, Washington, D. C.

Donald Derickson (1902) has been appointed head of the Department of Civil Engineering at Tulane University, New Orleans, La. (Advice by letter of September 16.) After some years of teaching at a leading university he expresses a preference for the all-round course in Civil Engineering, confined to the essential topics.

William H. Fox (1907) writes: "On September 16 I was appointed assistant engineer in charge of design of lateral sewers, by the Board of Public Works of Louisville, Ky., for which one million and a half dollars has been provided by action of the city government."

Fred B. Greenleaf (1908) Superintendent of Construction for the H. P. Cummings Construction Co., in rebuilding the power house for the International Paper Co., at Wilder, Vt., has recently afforded the students of the THAYER SCHOOL excellent opportunities for inspecting the heavy construction work and installation of several Morgan Smith turbines, three of 1750 h. p. each, and one of 1000 h. p. The draft tubes are unique in design and magnitude, being  $17\frac{1}{2}$  feet in largest dimension and being in concrete and partly in a horizontal direction.

W. H. Ham (1898) visited the School on September 28.

C. L. Bourne (1907) writes under date of September 27 that he is with the Bates Mfg. Co., of Lewiston, Me., on the construction of a large mill building of reinforced concrete.

Information from the family of Fletcher A. Hatch (1906) received at the last minute is that he entered the employ of the United Fruit Co., July 30, 1912, and is engaged in surveying plantations at Rio Frio. His correct address is given on page 46.

A letter from Henry R. Harrison (1911) under date of September 27 is to the effect that he is in charge of the Denver office of the Whitney Company of 1 Liberty St., New York City. Also that a year ago he made surveys for an irrigation project in the southern part of Colorado and after his return was asked to draw



up plans, specifications, and estimates for this work. Operations were begun in the spring, and he constructed a dam 30 feet high, 1100 feet long, with a dike of 900 feet, besides, with the usual regulating works. All designed so that the capacity of the reservoir may be increased.

A late return from Carroll Paul (1904) gives the additional information that he is Public Works officer at the Naval Station, Olongapo, Philippine Islands. Permanent address, Bureau of Yards and Docks, Navy Department, Washington, D. C.

Albert Smith (1903) has recently sent to the Director a pamphlet containing an account of a very interesting investigation, by ingenious devices, of wind pressure on buildings. The paper was prepared for the Western Society of Engineers and covers 18 pages with tables and diagrams. See review of this paper in *Engineering Record* for October 12, 1912, page 398.

**Thayer Society of Engineers, Omitted Names.** The letters T. S. should be affixed to the following names:

Crosby Tappan,	page 44	Reuben Hayes,	page 49
A. B. Barnes,	page 50	Edw. W. Higbee,	page 56
R. T. Young,	page 59		

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**Other Visitors,** omitted from page 65:

W. E. Hawley, of the class of 1906, visited the THAYER SCHOOL with Mrs. Hawley, August 15.

V. W. Russell, class of 1907, in February, 1912.

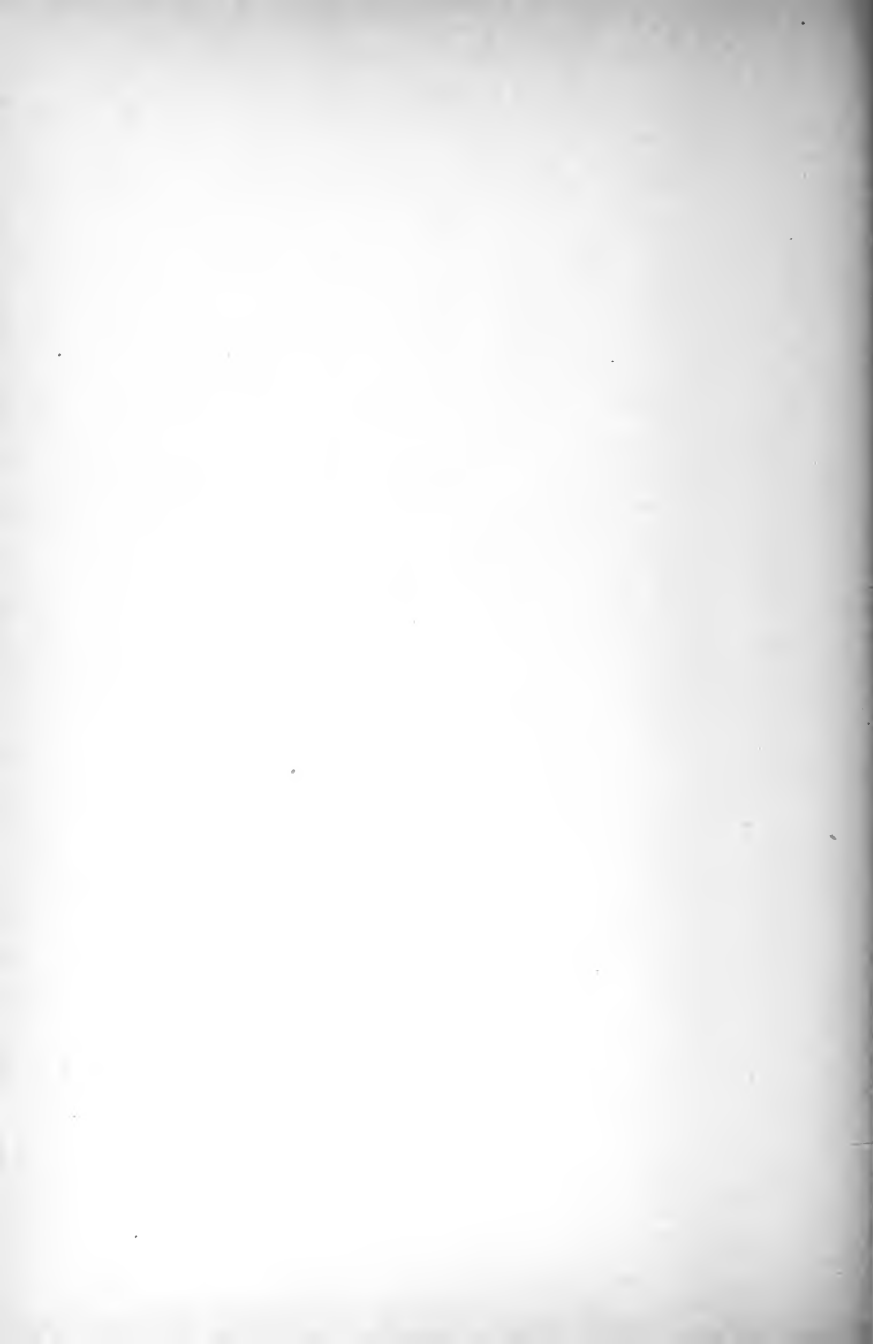
F. S. Cook, class of 1910, in the East on vacation, visited the School October 14, with Mrs. Cook.

J. W. Ingalls, class of 1911, visited the School October 12.

#### ALUMNI LIST, Corrections

Schiller Hosford, D. C. 1866 (p. 110), add: Died April 5, 1912.

Page 108. For Edw. D. Remington, read Edw. D. Redington.



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1769

# DARTMOUTH COLLEGE BULLETIN

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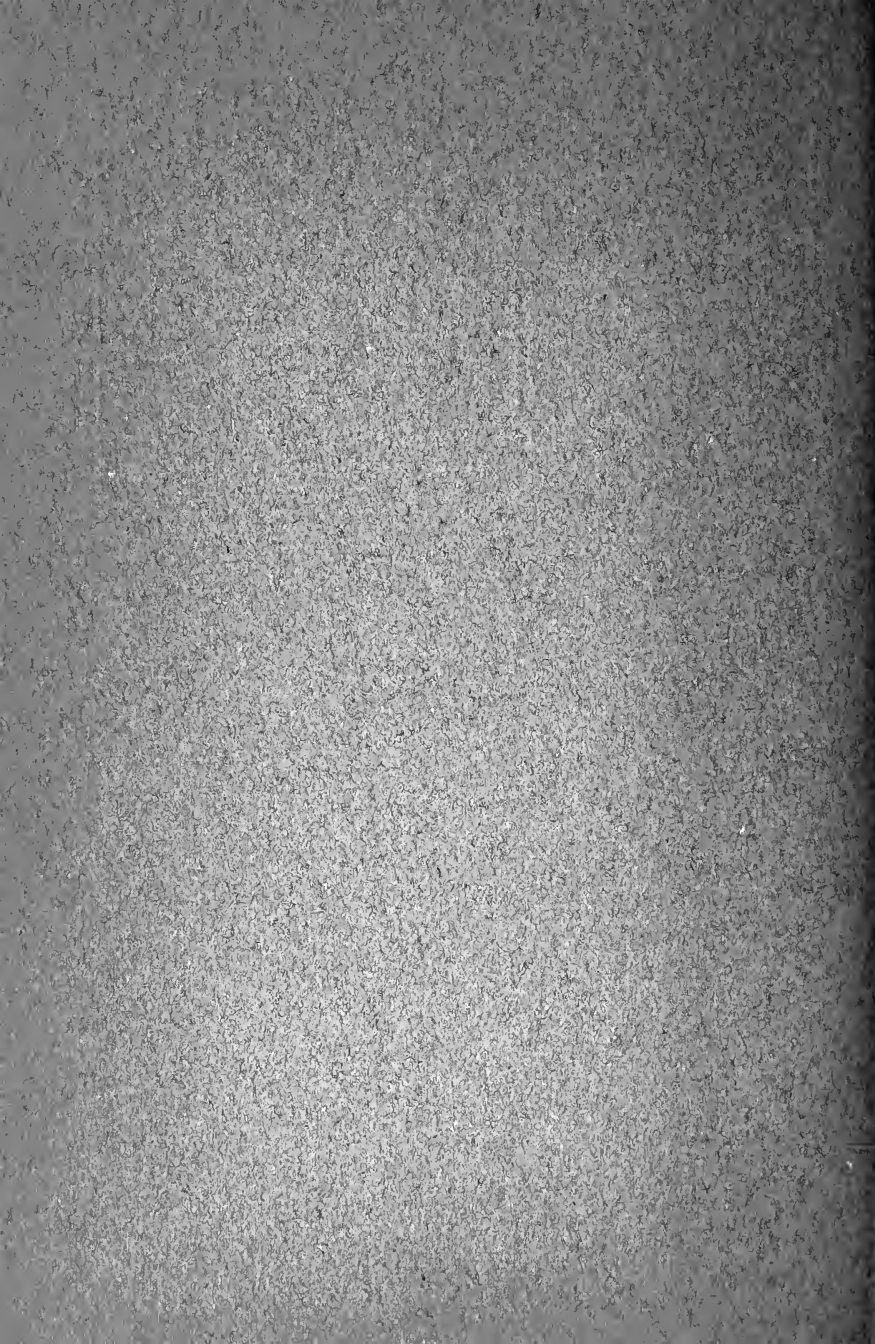
SEPTEMBER, 1913

New Series

Vol. II, No. 3

## THE THAYER SCHOOL OF CIVIL ENGINEERING

SEPTEMBER, 1913







Thayer School of Civil Engineering  
Founded 1871

# DARTMOUTH COLLEGE BULLETIN

<sup>1)</sup>  
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ANNUAL FOR 1913

OF

## THE THAYER SCHOOL OF CIVIL ENGINEERING

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DARTMOUTH COLLEGE

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AND OF THE

THAYER SOCIETY OF ENGINEERS  
OF DARTMOUTH COLLEGE.

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PRESENT ADDRESSES OF GRADUATES AND FORMER STUDENTS  
ALUMNI OF THE CHANDLER SCIENTIFIC SCHOOL AND  
OTHER DEPARTMENTS OF THE COLLEGE; AND  
OTHER PERTINENT INFORMATION

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PUBLISHED UNDER THE AUSPICES OF THE THAYER  
SOCIETY OF ENGINEERS OF DARTMOUTH COLLEGE

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SEPTEMBER, 1913

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## CALENDAR

1913

July 17 Year of forty weeks of the first-year class began, Thursday, 8:15 a. m.

September 17 Year of thirty-one weeks for second-year class begins, Wednesday, 8:15 a. m.

December 19 Recess of two weeks begins, after the morning recitation, Friday.

1914

January 2 Class-work resumed at 8:30 a. m., Friday.

April 24-25 Meeting of the Board of Overseers, Friday. Examination of the classes. Reading of the theses of the class of 1914. Conferring of the Degree of Civil Engineer.  
*Summer work-period of about twenty-one weeks begins for the first-year class.*

July 16 Session-year 1914-1915 begins, Thursday, 8:15 a. m.

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Class-work is omitted on Thanksgiving day. Usually on a holiday the first morning recitation is held.



## THAYER SCHOOL OF CIVIL ENGINEERING

THE THAYER SCHOOL OF CIVIL ENGINEERING was established in 1871 to provide a *distinctly postgraduate* or professional course of study in Civil Engineering. The fundamental idea was to have all of the preparatory training precede the technical. A "program" of 200 pages, prepared under the direction of the founder, Gen. Sylvanus Thayer, specified in great detail the requisites for admission, including the necessary mathematics, through the calculus, descriptive geometry, chemistry, physics, astronomy and related studies. This was practically what is now termed "the six-year course," depending upon the College or Scientific School for the specified requirements, and some broader training in languages, history, and "the humanities" generally. Consequently, during the first twenty years, 72 per cent of those admitted had already received the degree of A.B. or B.S.

But only a few were able or willing to take so much time; and, when Dr. Wm. J. Tucker assumed the presidency of Dartmouth College in 1893, a readjustment was made between the college courses and those of the associated institutions to accord with the broad policy which the President stated thus:—"It is always and everywhere the function of the College to give liberal education, beyond which and out of which the process of specialization may go in any direction and to any extent. The College must continually adjust itself to make proper connection with every kind of specialized work, not to do it."

THE BOARD OF OVERSEERS, which is responsible for the general program of courses of study and practice, then sanctioned the arrangement by which the first year's course in the THAYER SCHOOL could be elected by Seniors in College who had attained to the prescribed standard. This action established the "five-year course" which has been in continuous and successful operation during the past twenty years, although it has recently been proposed, discussed, and put in operation elsewhere, as something of a novelty. The high standard restricted the number of students in the early years, but secured men of broader education; and the change referred to made it possible for men of the right ability to secure both the college degree and the professional, in five years instead of six.

The administration of the THAYER SCHOOL has offered from the first a general course of study in civil engineering, aiming to include all essential principles and primary operations. Although "mechanical engineering" specifically is not included, the instruction in applied mathematics, mechanics and physics covers the fundamental theory, and there is a sufficient equipment for instruction in practical hydraulics, and a suitable course in electro-technics. Special attention is given to the indispensable *general qualifications* of the *graduate*, to wit: He must be adept in the routine practice of surveying, so as to hold his place under an exacting chief of party; he must be, at the start, an acceptable junior draftsman and an accurate computer; he must have practical knowledge of the ordinary materials of construction, gained by adequate laboratory tests and by trained powers of observation; he must have facility in making accurate and sufficiently complete records in a well-kept notebook; and the habit and method of informing himself as to the progress of engineering science and practice.

In the conduct of the work the conditions of actual practice are realized as much as possible or expedient, to wit: operations out-of-doors during three months continuously; entire days of unbroken work, and each man made responsible for a prescribed accomplishment and the checking of results; each subject is pursued uninterruptedly to a finish, and usually not more than two subjects are under consideration simultaneously. In the field-work an instructor is assigned to each party of five or six students; in classroom and laboratory instructors give personal supervision from three to eight hours daily; the environment offers wide variations of topography and favors unhampered out-door work for all operations of surveying, stream-gauging, etc. The cost of living is less than that in or near large cities.

*The principle of intensive instruction under close personal supervision* has always characterized the THAYER SCHOOL. While the several courses hereinafter described as broadly constituting the science and art of civil engineering present a greatly enlarged program, as compared with that of thirty years ago, the purpose is to restrict the work of instruction chiefly to those controlling principles, data, methods, manual operations and the "business" of engineering which are fundamental, and which are needful for the usual emergencies of the first year of practice. Justification of this policy is seen in the records of forty classes,—the pres-

ent activities of whose members are partly shown beyond,—where it appears that the graduates have done effective service and filled highly responsible positions in various lines of engineering, from Newfoundland and Nova Scotia to the Philippine Islands and Japan in longitude, and from Buenos Aires to British Columbia and Alaska, in latitude.

Antecedently, graduates of the CHANDLER SCHOOL OF SCIENCE AND ARTS, which graduated its first class in 1854, known before 1894 as the CHANDLER SCIENTIFIC DEPARTMENT OF DARTMOUTH COLLEGE, took a civil engineering course mostly included in their fourth year. The general alumni list at the end of this ANNUAL shows the professional standing of many of these graduates and of some B.A. men of the College who chose similar pursuits.

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DARTMOUTH COLLEGE,—to which the THAYER SCHOOL is related as a graduate department,—is one of the eight oldest colleges of America, established by royal charter in 1769. It has a healthful situation in the Village Precinct of Hanover, N. H., upon a plain 170 feet above the Connecticut river and 550 feet above sea-level. The territory occupied or controlled by the College comprises upwards of one hundred and thirty acres on which are forty-two buildings devoted directly to the uses of the College. Moreover, in case of illness, the Mary Hitchcock Memorial Hospital, constructed upon the most approved plans, and widely known, since its opening in 1893, as one of the best cottage hospitals in the country, furnishes the students such care and comforts as are seldom found outside of the larger cities.

RAILROAD CONNECTIONS. The railroad station, about half a mile from Hanover Inn, is Norwich and Hanover, on the Passumpsic Division of the Boston and Maine Railroad. At White River Junction, five miles south, five lines of railroads meet, viz.:—the Concord Division of the B. and M.; the Central Vermont and the Connecticut River Division, B. and M. R. R. (eight hours to New York),—connecting at Greenfield and Springfield for the West; the Central Vermont Railroad, North and West (thirty hours to Chicago); the Passumpsic Division, B. and M. R. R. (eight hours to Montreal); and the Woodstock R. R.

## THE ANNUAL AND THE THAYER SOCIETY OF ENGINEERS

Previous to 1899 the announcements of the THAYER SCHOOL OF CIVIL ENGINEERING were made in the annual catalogues of DARTMOUTH COLLEGE and by occasional bulletins. To secure the advantage of a separate and earlier publication, giving addresses of graduates and other information not admissible in the catalogue, the ANNUAL was instituted; and soon afterwards its publication was assumed by the THAYER SOCIETY OF ENGINEERS through its Executive Committee. As the Society includes in its membership former members of the CHANDLER SCIENTIFIC DEPARTMENT of the College, as formerly known, it has also endeavored to get into touch with all other graduates of the College who have become identified with engineering or related pursuits. Hence the supplementary list of addresses at the end of this volume which is prepared by the Secretary of the Thayer Society of Engineers.

Since all the correspondence is duly filed, inquiries concerning THAYER SCHOOL men may be answered so far as information has been supplied, subject to confidential restrictions. *Good correspondents who send interesting letters describing works in progress or under observation, with items or comments which, without violating confidence, may be presented to the students for instruction or stimulation, may effectively impress the young men by this sort of "personal contact" with their predecessors.*

Copies of the ANNUALS of previous years will be sent on application to the Director, Prof. Robert Fletcher. These contain biographical sketches of deceased alumni, notices of the technical work of the School, and T. S. C. E. men, etc.

For further information of the THAYER SOCIETY OF ENGINEERS, apply to the Secretary, Geo. C. Stoddard, Civ. Eng., 215 West 125th St., New York City.

## REQUIREMENTS FOR ADMISSION

Students in DARTMOUTH COLLEGE, in course of preparation for the THAYER SCHOOL, are advised to take the following studies, both to meet the College requirements and to conform to present standards of qualification: (Courses as per college schedule.)

### FRESHMAN YEAR

<i>First Semester</i>		<i>Second Semester</i>
Graphics 1	} Required	Graphics 2
English 1		English 2
Mathematics		Mathematics
Spanish	} Recommended	Spanish
French		French
German		German

### SOPHOMORE YEAR

Graphics 3	} Required	Graphics 4
Mathematics		Mathematics
Physics 1		Physics 2
Physics 3		Physics 4
History 1		History 2

Chemistry 1 and Chemistry 2 for those not presenting Chemistry on entrance.

### JUNIOR YEAR

Physics 5	} Required	Engineering 6
Chemistry 3 or 3a		Chemistry 4 or 4a
Astronomy 3		Astronomy 4
[Astronomy 2 not accepted]		English 10
English 9		Mineralogy 4
Mineralogy 3		
Economics 1, or Political Science 1	} Recommended	{ Economics 2, or Political Science 2

Students, with the Engineering course in view, are advised to present for entrance: English, French, two years Latin, History I or II, Mathematics I, Physics and Chemistry (elementary). In college mathematics the short courses in Differential Equations and Determinants are desirable because of their applications.

The essential requirements, formerly prescribed with particular details in "Program A," are:—1. Arithmetic; 2. Algebra, *Taylor* or *Bourdon*; 3. Geometry; 4. Trigonometry and Mensuration; 5. Compass Surveying; 6. Descriptive Geometry, including Shades, Shadows, Perspective, and Isometrical Drawing, *Church* or *Wilson*; 7. Analytic Geometry, *Bowser* or *Hardy*; 8. Calculus, *Hardy*; 9. Mechanics, as treated in Physics; 10. Chemistry: as nearly as possible a course equivalent to Chemistry 2, 3, and 4, of DARTMOUTH COLLEGE courses; 11. Physics: as nearly as possible the equivalent of Physics 1, 2, 3, 4, and 5 of the College courses (3 and 4, laboratory practice); 12. Astronomy, *Young's Manual*; 13. Physical Geography and Meteorology. Equivalent text-books recognized.

Candidates for admission, whether from DARTMOUTH COLLEGE or other institutions, have to pass an examination which is both oral and written. They should give notice of intention to apply by April 15 or earlier. They must present a certified record of standing and proficiency, and a neat set of *mechanical drawings*—constructions of important geometrical problems and leading problems of Descriptive Geometry. The usual examination covers more especially the essential principles of the branches numbered 2, 3, 4, 6, 7, 8, 9, 10, and 11. Prompt and accurate statement of principles and *definitions* is insisted upon, and a limited amount of blackboard work may be required. In all cases the "standing" or rated proficiency required is at least 75 per cent in the aggregate, in the subjects above specified, and not less than 85 per cent in at least three, nor less than 60 per cent in any one.

Students of approved ability and proficiency in the College may elect the first-year courses in the THAYER SCHOOL for their work of Senior year. At the close of the year, they may formally graduate from the College with the Bachelor's degree. They may become eligible for the degree of Civil Engineer, after pursuing the advanced engineering courses, postgraduate studies of the second-year group.

Hitherto about seventy per cent of those admitted have taken the five-year course. A large proportion have returned to take the postgraduate year after intermissions of one, two, and three years.

Only young men of correct habits and high character will be accepted or retained. Indulgence of an appetite for intoxicating drink will be sufficient reason for rejection:—and such indulgence or other immorality by any member of the institution during his course will be sufficient cause for summary dismissal.

## COURSES OF STUDY AND PRACTICE

### FIRST YEAR

From the middle of July to the last week in April, forty weeks, each week comprising eleven half-days, of four and a half hours, devoted to study, field-work, or office work. In emergencies the half day is extended to five hours or more.

Instruction is given chiefly through daily recitations from textbooks, with comments and explanations by the instructor, and occasional test examinations. In each course one or two principal textbooks are purchased by the students, and others for reference or classroom use are made available by the School. The most recent suitable and standard books are procured. Each student is called upon occasionally to read and report upon an assigned topic, presenting results before the class both from prepared notes and sketches and by oral demonstration.

The amount of field work and practice in laboratory, etc., is made sufficient only for necessary training and to elucidate and emphasize the more important principles.

A.—THEORY AND PRACTICE OF SURVEYING. [This is preceded by a preliminary course of 104 hours during Junior year in College.]

1. INSTRUMENTS:—Engineer's transit, wye-level, dumpy level, prismatic compass and sextant; theory of and perfecting of adjustments; finding magnifying power of telescopes, sensitiveness of spirit levels and compass needles, etc.

2. PRELIMINARY PRACTICE until a required degree of facility is attained, and in which each student shall, by himself or as one of a party, do well a piece of test work of each of the following kinds:—differential levelling; angle measurement in a small scheme of triangulation on a systematic plan of survey for the season; a land survey involving ordinary measurement of lines and angles; measurement of a base-line by steel tape and method adequate to secure precision shown by a probable error not greater than 1 in 400,000; solar observations with engineer's transit for azimuth.

3. GENERAL PRACTICE:—A topographical survey for a contour map, including part of a village or town; a road or line survey by stadia of several miles, making closed circuits for checks; the routine of an ordinary railroad survey, preliminary and "location", with a little practice in staking out easement curves, frog-angles, and switches; and field work with the aneroid barometer, prismatic compass and hand level in reconnaissance. The office work includes the most approved methods of computing, use of planimeter and slide-rule, or, more precise calculating machine, mapping and tracing. All the work is planned to yield definite and useful results in shape of maps and profiles of selected districts near by, and to foster an *esprit de corps* and pride in the accomplishment.

4. SPECIAL METHODS AND INSTRUMENTS:—Use of the plane-table, photography in surveying, geodetical surveying, and special practice relating to city and underground surveys, etc., can only be briefly considered in the class-room. Such special practice is beyond the domain of the School, but readily mastered in the future.

*About 154 half-days. Laboratory fee, \$3.00.*

B.—MECHANICS AND APPLICATIONS. Principles of kinematics, statics, and kinetics; data and laws of friction, elements of mechanism, important applications in the stability of structures, machine design, operation of hoisting machinery, action of the locomotive engine, etc. *60 half-days.*

C.—MATERIALS OF ENGINEERING. 1. Physical and chemical properties and production of limes, cements, mortars, natural and artificial stone, timber, iron, steel, zinc, copper, aluminum, etc., and their mineral sources; durability; preservative materials. 2. Mechanical properties, analytically and experimentally treated. 3. Laboratory test of cements, iron, steel, wood, and other materials. *70 half-days.*

Experimental study of *mechanics of materials* is made by a prescribed series of tests for tension, compression and resistance to flexure, made by each student. Several series of cement tests are conducted each year by groups of two or three, on which reports are required. Occasionally reinforced concrete beams are made and tested.



D.—ORDINARY AND SPECIAL STRUCTURAL WORK AND OPERATIVE DETAILS. *Course begun:*—Elementary courses on stone-cutting (practical problems on the drafting board), masonry and foundations, piers, arches, culverts, and other masonry structures. 36 half-days.

E.—FRAMED STRUCTURES—TRUSSES FOR ROOFS AND BRIDGES, BUILDING SKELETONS ETC. *Course begun:*—Graphical statics and other analysis applied to girders and simple trusses. Ordinary and essential details. One or two simple designs. 40 half-days.

G.—ROADS, RAILROADS, AND TRANSPORTATION IN GENERAL. *Course begun:*—Roads, streets and pavements,—construction and maintenance. 20 half-days.

L.—PRINCIPLES OF ELECTRICAL ENGINEERING: (a) *Course in Direct Currents.* (b) *Course in Alternating Currents.*

The methods of the courses aim to impart a concise, practical knowledge of fundamental laws and phenomena, as well as of the best modern types of electrical apparatus, in order to give an understanding of their design, construction and operation.

(a) *Direct Currents:*—

The recitations of this Course deal with magnetic fields, electrical units, electrical energy and applications to primary and storage batteries, telephone and telegraph, generators and motors and electric lighting.

The laboratory exercises of the course are arranged to show the construction and use of the more important measuring instruments and to give practice in testing and conducting original investigations.

*Laboratory fee, \$4.00.*

## SECOND YEAR

Thirty-one weeks, of eleven half-days each, from the middle of September to the last Friday in April. During the second year the character and range of subjects call for a wider reading of treatises and current technical literature, which is promoted by full programmes of the courses and use of indexes. Some of the courses of this year are so interdependent that the time allotments, when stated, are only approximate.

D.—(*concluded*). Framing in wood and metal; advanced reading on masonry and foundations. Theory and practice in relation to retaining walls, dams, chimneys, fireproof and slow-burning construction of buildings; renewals and enlargements; including a *text-book course on the theory and applications of reinforced concrete in these and other cases*. Estimates and costs. Engineering contracts and specifications, and inspection. Auxiliary work and machinery. Tours for inspection of accessible works.

E.—(*concluded*). Analysis of stresses in trusses, framed arches, stone arches, and suspension bridges; details and maintenance. Frames of tall buildings. Tours of inspection. Elementary designing. *About 65 half-days*.

F.—ROCKWORK, TUNNELING, AND MINING. Outlines of Geology,—vacation reading. Explosives and blasting; special appliances and methods in subterraneous works. Reading and lectures.

G.—RAILROADS AND TRANSPORTATION. Economics of location, construction and maintenance of railways. Transportation problems in the United States:—railways and water transportation; railways and recent legislation. A brief study of street railways (electrical and cable traction, etc.), mountain railways, telpherage, and marine transportation. *About 30 half-days*.

Tuck School lectures on history and theory of transportation and on railroad operation and administration may be attended.

H.—HYDRAULIC ENGINEERING: (a) *Recitation Course*. (b) *Laboratory Course in Experimental Hydraulics*.

(a) Theory of the statics and dynamics of fluids; principles and data as affecting works controlling and utilizing water under pressure; laws of flow in channels, pipes, etc.; principles of measurement of small and large volumes; laws governing the operation of water wheels, pumps, meters and hydraulic rams, movable dams and canal locks; applications to development of water-power. Methods and data for the collection, storage, purification, and distribution of water for irrigation and municipal consumption.

(b) A series of experiments and prescribed tests for efficiency of nozzles, weirs, siphons, pumps, motors, meters, and rams; the gauging of streams (performed on the Connecticut

River); friction in the town mains, fire hose, and fittings. This gives the student good practice in pipe fitting, setting up motors, pumps, meters, etc., and overcoming unexpected difficulties.

*Laboratory fee, \$3.00.*

The Hanover Water Works, a gravity system, having a reservoir of 137,000,000 gallons capacity, a dam 720 feet long and a main and distribution of about nine miles of pipe, affords excellent conditions for hydraulic experiments under a head of 190 feet or less, both at the street hydrants and in a well-equipped hydraulic laboratory.

I.—HEAT, HEAT ENGINES AND POWER. Principles of Thermodynamics; fuels and their combustion; steam. Heat engines; construction and operations of typical forms; application of laws. Development and transmission of power. *About 20 half-days.*

The central heating system of the College, serving thirty-eight buildings, affords opportunity for studying efficiency of boilers and furnaces, at times when regular tests are made. The pulp and paper mills at Wilder, nearby on the Connecticut River, give abundant facilities for studying the operation of a large water-power plant. Arrangements have been made heretofore for conducting tests of waterwheels, gauging flow in flumes, testing fire-pumps, etc., at these works. In the study of development of power, courses H, I, and L are necessarily partly concurrent. (The time available permits only a brief theoretical study of heat engines).

J.—SANITARY ENGINEERING. Drainage and sewerage; systems and appliances; governing principles. Heating and ventilation. Special study of "separate systems" and methods of sewage disposal. Sand filtration of water and sewage. *About 30 half-days.*

The village has three separate systems of sewerage, two built and owned by the College and adapted to a suitable disposal plant hereafter. Successful examples of heating and ventilation may be seen in the new buildings of the College. A model domestic sand filter has been in operation for some years at the THAYER SCHOOL building, and those who take special interest in the problem of the purification of water supply as affected by micro-organisms may arrange for such extra study as time available will allow.

K.—CANALS, IMPROVEMENT OF RIVERS AND HARBORS. Principles; surveys and observations; construction, in different cases—means and methods of procedure. (Briefly by reading; lectures on the Mississippi river levees, harbor jetties, breakwaters, the Panama Canal, etc.).

L.—PRINCIPLES OF APPLIED ELECTRICITY. (*b*) *Alternating Currents*. This course being a logical continuation of Course (*a*), is presented in a similar manner, but deals largely with the *engineering* features of applied electricity. The recitations will present the fundamental theories of alternating currents with the aid of calculus, vector analysis and Fournier's Theorem. Particular study will be given to magnetic-induction; transformers; electric power transmutation, transmission, and distribution.

The laboratory exercises are intended to give a firmer grasp of the theory and more adequate conception of "electrical mechanics."

*Laboratory fee, \$3.00.*

THESIS WORK in connection with one or more of the courses, and a week or two of exclusive time.

BUSINESS RELATIONS OF THE ENGINEER. Students of the THAYER SCHOOL may attend lectures given in the Tuck School of Administration and Finance, on appropriate subjects, so far as the schedules will permit.

THE PRINCIPAL TEXTBOOKS used are:—Johnson's "Treatise on Surveying," Webb's "Railroad Construction," Berger's "Manual of Engineer's Instruments," Merriman's "Least Squares." Woodwards's "Rational and Applied Mechanics," and problems from Sanborn's "Mechanics Problems," and other works. Baker's "Masonry Construction," Johnson's "Materials of Construction," Merriman's "Mechanics of Materials," Carnegie's "Pocket Companion (Steel) and 'Cambria Steel.'" French and Ives' "Stone-Cutting," Johnson, Turneure, and Bryan's "Framed Structures." Baker's "Roads and Pavements." Franklin and Estey's "D. C. Machinery," and Sheldon's "A. C. Machinery." Taylor and Thompson's "Concrete and Reinforced Concrete," Turneure and Maurer's "Principles of Reinforced Concrete Construction." Tucker's "Contracts in Engineering." Johnson's "Railway Transportation," and read-

ing of Wellington's "Railway Location." Moulton's "Waterways vs. Railways," etc. Merriman's "Hydraulics," Turneure and Russell's "Public Water Supplies," and reading of Schuyler's "Dams," Church's "Hydraulic Motors," etc. Folwell's "Sewerage," Hazen's "Clean Water," and reading of recent works on sanitation and sewage disposal. Classroom use of a suitable treatise on "Thermodynamics." Classroom use of Stevenson's "Canal and River Engineering" and Stevenson's "Harbors," Hunter's "Rivers and Estuaries," Reports on the Panama Canal, N. Y. State Barge Canals, etc.

TOURS, for the study and inspection of works in progress or completed are made when expedient. Visits have been made to Boston, Lawrence, Lowell, Worcester, Holyoke, New York, etc.; and have included the construction of the first Brooklyn suspension bridge; steel works; sewage disposal works at Worcester and Clinton; the principal works for water supply and waterpower development in New England; mines, bridge-works, large pumping plants, Massachusetts Experiment Station, etc. There is now so much to be seen of bridges, developments of water supplies, power and electric transmission, mines, etc., at points so near as to be reached by single-day trips, that longer tours are seldom expedient.

SUMMER WORK PERIOD AND INTERMEDIATE YEAR. Opportunities for summer employment have usually been found for the first-year men before or soon after May 1st. In most cases the students are qualified only for subordinate positions as draftsmen, assistant in city engineers' offices; on railway surveys or maintenance, U. S. Government Surveys, etc. The advantages from such practice are often very considerable, but vary with the opportunity offered, and with the character, aptitude, and previous experience of the man. Some find it necessary or desirable to continue in such employment during the entire following year, and some make their way to positions of responsibility; all of these appear in the ANNUAL, and College Catalogue, as the non-resident group for the intermediate year. Some of these return for the fifth year after an absence of one to three years.

TERMS, EXAMINATIONS, ETC. The session-year is divided into two terms by the holiday recess. The summer *work-period* extends from the last week in April to mid-September. The *graduating* THESES are submitted to the BOARD OF OVERSEERS, before whom the candidates for the *Degree of Civil of Engineer* present

themselves for examination in April; after which the degrees are formally conferred.

Tuition is one hundred and forty dollars per annum, one-half to be paid each term in advance. The graduation fee is ten dollars, and laboratory fees are \$7 per year. There is no provision for pecuniary aid. The annual expenses for an economical student will vary not far from four hundred and twenty-five dollars, including tuition, books, stationery, board, fuel, light, and drawing instruments.

Any student who fails to maintain an average of at least 75 per cent during the first year of the THAYER SCHOOL work will not be allowed to enter upon the courses of the second year, nor be entered upon the College Catalogue as a student of an intermediate year.

U. S. CIVIL SERVICE EXAMINATIONS. The U. S. Civil Service Commission has arranged to hold examinations in Hanover, for the convenience of applicants from the student body. The positions for which students of the THAYER SCHOOL OF CIVIL ENGINEERING are eligible are:—Aid, Coast and Geodetic Survey, assistant topographer, draftsman, civil engineer and draftsman, engineering and hydrographic aid, U. S. Geological Survey, surveyman, U. S. Reclamation Service, and junior engineer, U. S. Corps Engineers. The last four are usually possible only for second-year students, candidates for the degree of C.E.

For further information address President ERNEST F. NICHOLS, or Professor ROBERT FLETCHER, Director.

## BOARD OF OVERSEERS

ERNEST FOX NICHOLS, D.Sc., LL.D., President of Dartmouth, College, PRESIDENT.

HENRY LARCOM ABBOT, LL.D., lately Col. U. S. Corps of Engineers; Brig. Gen. U. S. Army, retired. Permanent address, 23 Berkeley St., Cambridge, Mass. Consulting Engineer. Lately member of International Comité Technique de la Compagnie Nouvelle du Canal de Panama and subsequently its Consulting Engineer. Member of the International Board of Consulting Engineers for the Panama Canal. Professor of Hydraulic Eng., George Washington Univ., Washington, D. C.

JONATHAN PARKER SNOW, C.E., Recently Chief Engineer of the Boston and Maine Railroad System. Consulting Civil Engineer, Office 18 Tremont St., Boston, Mass. Residence, 58 Chandler St., W. Somerville.

GUSTAV JOSEPH FIEBEGGER, Col. U. S. Army; Professor of Civil and Military Engineering, U. S. Mil. Academy, West Point, New York.

OTIS ELLIS HOVEY, C.E., Asst. Chief Engineer of the American Bridge Company of New York; Hudson Terminal Bldg., 30 Church St., New York City.

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### TREASURER

CHARLES PARKER CHASE, A.M., Hanover, N. H.

## BOARD OF INSTRUCTION

ERNEST FOX NICHOLS, D.Sc., LL.D., President of the College, PRESIDENT.

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DIRECTOR and Professor of Civil Engineering:  
Mechanics, Hydraulic and Sanitary Engineering, courses on  
Bridges and Transportation.

JOHN VOSE HAZEN, C.E.

Professor of Civil Engineering on the Chandler Foundation:  
Railroad Surveying, Road Construction, and Masonry Structures.

CHARLES ARTHUR HOLDEN, C.E.

Professor of Civil Engineering: In charge of Surveying Courses;  
Materials of Construction and Mechanics of Materials; instruction  
in second year courses.

FRANK EUGENE AUSTIN, B.S.

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Experimental Hydraulics and Power Transmission.

SIDNEY LEE RUGGLES, C.E.

Instructor in Surveying, Graphics and Laboratory.

HARRY MADARA BROWN, B.S.

HERBERT CARROLL OSBORNE, B.S.

Field Assistants in Surveying, July, August, and September.



## NON-RESIDENT INSTRUCTORS AND LECTURERS

### SESSION-YEAR 1912-13

- COL. F. V. ABBOT, U. S. Corps of Engineers, an illustrated lecture on "Experiences on Various Works built by U. S. Engineer Officers"; November 11, 1912.
- MR. H. N. SAVAGE (T. S. C. E., 1890), Supervising Engineer U. S. Reclamation Service, Northern Division (Montana, Wyoming, N. Dakota), an illustrated lecture on the irrigation work of the U. S. R. S., important results to date; March 12, 1913.
- MR. F. E. MATTHES, Topographer, U. S. Geological Survey, on "Recognition and Representation of Stratigraphical Features in Topographic Mapping"; laying emphasis on methods of expressing physiographic types on the finished sheets; March 22.
- PROFESSOR GEO. C. WHIPPLE, consulting engineer of New York City and professor of sanitary engineering Harvard University, an illustrated lecture on sewage disposal, showing practice in Great Britain, Europe and the United States; April 18, 1913.
- MR. EDGAR H. HUNTER, Civil Engineer (T. S. C. E., 1902), a talk on practical details of sewer construction, based upon an experience of several years; February 11, 1913.

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**Lecturers for 1913-14** are expected as per following partial list, although arrangements are not yet definitely made:—

- MR. C. A. FRENCH (Dart. Coll., 1893), City Engineer, Laconia, N. H., on organization of a public works' department for a small city.
- MR. C. L. CARPENTER (T. S. C. E., 1889), Manager Central Aguirre Co., Porto Rico.
- MR. F. C. STANTON (T. S. C. E., 1902), Ass't Engineer, Isthmian Canal Comm., Cristobal, C. Z., Panama.
- MR. E. J. MORRISON (T. S. C. E., 1893), Pres. Hastings Pavement Co.; Member Chamber of Commerce, New York City.
- MR. J. H. LETTENY. (T. S. C. E., 1896), Commonwealth Dredging Co., Boston, Mass.

## ADDRESSES AND OCCUPATIONS OF ALL MEMBERS OF CLASSES TO DATE

The DEGREE OF CIVIL ENGINEER was conferred in due course upon those whose names appear in **black letter**, and must be so understood, in addition to the college degrees (conferred by Dartmouth College unless otherwise stated) indicated by the usual title letters. *Names in italics* are of those who left at the end of the first year to engage in engineering or other business; also of a few who failed otherwise to qualify for the degree.

\*\*Denotes deceased. Biographical notices of the deceased of previous years may be found in the ANNUAL for 1899 and those following. Literary activities of THAYER SCHOOL men are noted in the ANNUAL for 1904 and some of those preceding.

T.S. indicates membership in the THAYER SOCIETY OF ENGINEERS.

ARRANGEMENT AND ABBREVIATION:—The business address is given first. Perm. = Permanent Address. Res. = Resides. Eng. = Engineer. Civ. = Civil. Jun. = Junior. Memb. = Member. Assoc. = Associate. Div. = Division. Res. Eng. = Resident Engineer. Pres. = President.

That portion of this publication relating to the Thayer Society of Engineers, separated by its appropriate title page, was prepared by GEO. C. STODDARD, the Secretary of that Society; the first part by the DIRECTOR of the THAYER SCHOOL.

*The affixed date in parenthesis indicates when the last information was given. If any reader has later information please send it promptly to the Director, and to the Secretary of the Thayer Society of Engineers. Class secretaries are requested to coöperate.*

*All Thayer School men are particularly requested to inform the Director promptly as to any change in professional or other occupation, and residence.*

## NAMES AND ADDRESSES BY CLASSES

### 1873

**\*\*Thomas Stevens Greenlay.** Died at San Antonio, Texas, Sept. 24, 1898. (See Annual for 1899.) Two sons succeeded to his business as manager of railway supply house.

**\*\*Albert Hezekiah Porter, A.M.** Died at Thetford Center, Vt., Dec. 10, 1909; age 65 years. (See Annual for 1910.)

**\*\*Henry Allen Hazen, A.M.** Died at Washington, D. C., Jan. 24, 1900. (See Annual for 1900.) Was Professor of Meteorology, U. S. Weather Bureau; author of various papers on meteorology.

### 1874

*James Trask Woodbury, A.B.* Farmer, Francestown, N. H. Attended the two years' course, but did not formally graduate.

### 1875

**Charles Everett Andrews, A.M.** Congregational minister and farmer, Walpole, Mass. (1906)

**Henry Martyn Paul, A.M.** Astronomer, Naval Observatory until 1899. Engineer, Bureau of Yards and Docks, until 1905. Professor of Mathematics, U. S. Naval Academy until 1912. Commissioned Professor of Mathematics in the Navy in 1897, and retired in 1913. Summer address, South Bristol, Me. Winter address, The Ontario, Washington, D. C.

**Jonathan Parker Snow.** Chief Engineer, Boston and Maine Railroad System from July 1, 1909, to July 1, 1911; having been bridge engineer since June, 1888. Consulting Civil Engineer, Office 18 Tremont St., Boston, Mass. Res. at 58 Chandler St., W. Somerville, Mass. Overseer THAYER SCHOOL C. E., Director Am. Soc. C. E. Member Boston Soc. C. E., member Am. Soc. for Testing Materials, and Am. Ry. Eng. Assoc. T.S. Author of valuable committee reports and contributed discussions on iron and steel structures.

**\*\*Edward Lewis Gage, B.S.** Died at Chicago, Ill., April 21, 1892. Was railroad engineer and ranchman in Texas.

## 1876

**John Vose Hazen, B.S.** Professor of Civil Engineering and Graphics, Chandler Scientific Course, and in the THAYER SCHOOL OF CIV. ENG., Dartmouth College. Memb. Am. Soc. C. E. Memb. of Soc. for Prom. of Eng. Educ. T.S. In practice as a Surveyor and Civil Engineer. Commissioner, Hanover Village Precinct,—in charge of street paving and improvements, nine years; School Commissioner, etc.

**Charles Holmes Pettie, A.M.** Professor of Mathematics Dean of New Hampshire College, Durham, N. H. Memb. of Soc. for Prom. Eng. Educa., and of the A. A. A. S. Acting President, New Hampshire College, during a five months interregnum.

**\*\*Walter Henry Foster, B. S.** Died at Rutland, Vt., April 2, 1878. (See Annual for 1899.) Teacher.

## 1877

**Edward Kellogg Blanchard.** Chief Eng. Wyoming Const and Development Co., Buffalo, Wyo. Res. Seymour, Mo.

**George Arthur Butler, A.B.** Assistant Engineer, Bridges and Building Dept., Ill. Cent. R. R. 6730 Normal Ave., Chicago, Ill. No report since 1902.

**John Whitcher Record.** Engineer for Buffalo Dredging Company; dredging, construction of canals, breakwaters, docks, and foundations, Buffalo, N. Y., until 1912. Res. 819 Potomac Ave. Retired on account of poor health.

**John Alberto Worthen, B.S.** Civil Engineer, general practice, 557 Montclair Ave., Oakland, Cal. Res. 3618 University Ave., Los Angeles, Cal. (1912)

## 1878

**John Dye Lonsdale.** Manufacturer, Dale City, Guthrie Co., Ia. Lately County Surveyor. (1909)

**\*\*Mace Moulton.** Lately Consulting Engineer for iron and steel structures, New York City. Died suddenly, April 27, 1909 (See Annual for 1909.)

## 1879

**Ray Timothy Gile, B.S.** Civil Engineer and Surveyor, 61 Pleasant St., Littleton, N. H. Surveys for and construction of railroads, highways, sewerage, and waterworks; exploring, estimating and surveying of timber lands. T.S.

## 1880

**\*\*Chalmers Williams Stevens, M.S.** Killed by lightning, at National Observatory, Cordoba, Argentine Republic, Feb. 16, 1884. (See Annual for 1899.) The fine chime of bells for Rollins Chapel, Dartmouth College, was given as a memorial of Mr. Stevens by the late Hon. William E. Barrett of Boston, Mass. (Dart. Coll., 1889.)

## 1881

**\*\*Hiram Augustus Hitchcock, B.S.** Assoc. Prof. Civil Engineering, THAYER SCHOOL OF CIVIL ENGINEERING, 1883 to 1895. Died at Hanover, N. H., January 17, 1895. (See Annual for 1899.)

*Charles Damon Lamb, B.S.* Asst. Engr. U. S. A., U. S. Eng. Depot, foot of Arsenal St., St. Louis, Mo. Res. 3647 Hartford St.

*David Ramsay Reed, B.S.* Mining Engineer, 304 Boston Building, Denver, Col. Practice in the Western and Southern States.

**\*\*Elmer Kilburn.** Died at Omaha, Neb., April 16, 1881.

## 1882

**Sidney Bates Cady, A.B.** (Middlebury College.) Asst. Engr. Board of Public Improvements, Topographical Bureau, Borough of Brooklyn, New York City. Memb. of Soc. of the Municipal Engrs. of the city of New York. Res. Walnut Terrace, Bloomfield, N. J.

**John Alexander Macnicol.** Consulting Eng. for the Snare & Triest Co., Woolworth Bldg., 233 Broadway, New York City and Havana. Box 733, Havana, Cuba. Memb. Am. Soc. C. E. T.S.

**\*\*Edmund Dorman Libby, A.B.** Died in Concord, N. H., April 24, 1903. (See Annual for 1903.) Was U. S. Engr. on Mississippi river improvement, St Louis to Cairo, about 14 years.

**\*\*Dana Chase Barber.** Died at his home, near Philadelphia, 1889. (See Annual for 1899.) Was a sanitary engineer in Philadelphia.

## 1883

**Sinclair Joseph Johnson, A.M.** (University of Wooster, O.) Railway and Automobile Specialties: 50 Church St., New York City. Res. 28 Montclair Ave., Montclair, N. J. (1912)

**Solomon Barnes Merrill, A.B.** In practice as Civil Engineer and Assayer. Since April, 1905, Secretary-Treasurer of Boulder Iron Works, Boulder, Colo. Address: 821 Mapleton Ave. (1910)

## 1884

**George Hunt Hutchinson, B.S.** Chief Eng. Northwestern Fuel Co., Pioneer Bldg., St. Paul, Minn. Res. St. Paul, Minn. Memb. Am. Soc. C. E. T.S.

**\*\*George Riedemann, B.S.** (College of the City of New York.) Died in New York, May 11, 1885.

## 1885

**Daniel Edward Bradley, B.S.** 1021 Asylum Ave., Hartford, Conn. Retired from business, May, 1910, as Pres. Berlin Construction Co. Memb. Am. Soc. C. E., and of Conn. Soc. C. E. T. S.

**Ralph Henry Brown.** Chief Engineer, Eastern Bridge and Structural Co., Worcester, Mass. Office and Works: Crescent St. Memb. Am. Soc. C. E. T.S.

**John Jacob Hopper, B.S.** Contractor and Civil Eng. 215 West 125th St., New York City. Jun. Am. Soc. C. E. Memb. Engineers Club. T.S. Mr. Hopper built the section of the N. Y. Rapid Transit Subway, 104th St., to Harlem River, including the tunnel through Central Park, executing this large contract without any serious accident.

**\*\*Arthur Walker, A.B.** (Univ. of Wooster, O.) Died Sept. 27, 1891. Was a bridge draftsman and designer, Pittsburg, Pa.

**John James Marshall.** Student through the two years' course. Did not formally graduate. Last report: Marshall & Atherly, Engrs. and Contractors, Basin, Wyo. T.S. (1910)

**Benjamin Phillips, A.B.** Patent Lawyer, 53 State St., Boston, Mass. Phillips, Van Everen & Fish. Res. Lakeville, Mass. (1910)

**\*\*Irving Benjamin Hayes, A.B.** Physician, Florence, Mass. Died Jan. 3, 1909. (See Annual for 1910.)

## 1886

**Walter Whaley Curtis.** Consulting Civ. Eng., expert in patent cases. President of the Curtis Coal Mining Co. and Rapson Coal Mining Co., 1015 North Nevada Ave., Colorado Springs, Colo. Removed from Chicago in June. Memb. Am. Soc. C. E., St. Paul Soc. C. E., Western Soc. of Eng., and Am. Ry. Engineering Assoc.

**Malverd Abijah Howe, M.S.** (Norwich University, Vt.) Prof. of Civil Eng. and Director of the Course in Architecture, Rose Polytech. Inst., Terre Haute, Ind. Memb. Am. Soc. C. E., Soc. for Prom. Eng. Educ., Am. Assoc. Adv. Sci., Am. Soc. for Testing Materials. Author of works and articles on theory of arches and bridge trusses.

**John Duncan Hutchinson, A.B.** (Middlebury College, Vt.) Civil Engineer, Antrim, N. H.

**John Frank Springfield, A.B.** Public Utilities, Hutchinson, Kan. Perm. 64 Summer St., Rochester, N. H. T.S. (1911)

**Frank Lyon Wheaton.** Eng. Dept., D. L. & W. Ry., Hoboken, N. J. Res. 85 South Arlington Ave., East Orange, N. J. With this company since 1900 as Eng. of construction: having charge of the new double track tunnel through the Palisades, Jersey City; located the Hopatcong cut-off in northern New Jersey, supervising this very heavy construction, including two long arch bridges and ninety road culverts under high fills. (See his descriptive paper in *Eng. News*, Aug. 13, 1908; also in *Eng. Record* and *Railroad Gazette*.) Memb. Am. Ry. & Engineering Assoc. T.S. Now in charge of construction of 40 miles of new line northwest of Scranton, a double track tunnel 3600 ft. long, a concrete viaduct the largest in the world, 248 ft. high and 2300 ft. long, and another 150 feet high and 1500 ft. long.

**Rush Chellis, A.B.** Claremont, N. H. General practice as Engineer and Surveyor in Sullivan County and adjoining district. Also farmer and breeder of Jersey cattle. Representative, N. H. legislature, 1907 and 1909.

*Edwin Preston Dewey, B.S.* (New Hampshire College.) City Engineer, City Hall, Long Beach, Cal. Res. 829 Chester Place.

*Robert Hunter.* Present address unknown.

### 1887

**Walter Eugene Angier, B.S.** Since May 1, 1910, memb. of firm: Modjeski and Angier, Civil Engineers, 220 So. Michigan Ave., Chicago. Pittsburg office, 607 Arrot Bldg., Pittsburg, Pa. New York office, 101 Park Ave. Lately Res. Eng. Thebes Bridge, Thebes, Ill. Res. 4538 Oakenwald Ave., Chicago, Ill. Memb. Am. Soc. C. E., Memb. Western Soc. Engrs., Memb. of Chicago Engrs. Club.

**Samuel Morey Wilcox, B.S.** U. S. Asst. Eng. (Principal since Aug., 1912), in charge of field office and work for improvement of Galveston Harbor; Office U. S. Engr., Galveston, Tex. Res. 1402 Ave. E.

### 1888

**Charles Herman Cheney, M.A.** Memb. and auditor, Cheney Brothers, Silk Manufacturers, South Manchester, Conn. (estab. 1838, incorp. 1854); advisory memb. of Board of Directors. Director and Sec. So. Manch. R. R. Co., So. Manch. Water Co., So. Manch. Light, Power and Tramway Co., So. Manch. Sanitary and Sewer Dist., and Manager So. Manch. R. R. Co. T.S.

**Charles Henry Nichols, B.S.** (M. C. E. Norwich Univ., Vt.) Consulting Engineer; structural steel, foundations, reinforced concrete, timber-construction, etc. Office 45 E. 42d St., New York City. Res. River Road, Bogota, N. J. Memb. Eng. Soc. Western Pa. T.S. Has designed the steel-work for some of the largest buildings in New York: lately the Bankers' Trust Bldg.; foundations for the Municipal Bldg., etc.

### 1889

**Charles Lincoln Carpenter, B.S.** Manager Central Aguirre Co. and Manager Ponce & Guayama R. R., Central Aguirre, Porto Rico, since September, 1912. Memb. Am. Soc. C. E., Am. Ry. Engrs. Assoc., and of Am. Soc. of Contracting Engrs. T.S.



**Charles Francis Chase, A.B.** Chief Eng., Berlin Construction Co., Berlin, Conn. Res. New Britain, Conn. Memb. Am. Soc. C. E., and of Conn. Soc. C. E. T.S. Since May 1, 1912, Chairman of the Board of Water Commissioners, New Britain.

**Herbert Stacy Eaton, B.S.** Asst. Eng. Visalia Elect. Ry. Co., Lemon Cove, Tulare Co., Cal. Res. Caruthers, Fresno Co., Cal. (1909) Letter returned unclaimed, 1911.

**Arthur Woodbury Hardy, B.S.** (New Hampshire College.) Pres. Garden City Spring Works, 2300 Archer Ave. Res. 4020 Ellis Ave. T.S.

**Otis Ellis Hovey, B.S.** Asst. Chief Engr. American Bridge Co. of New York, Hudson Terminal Bldg., 30 Church St., New York City. Res. 304 W. 7th St., Plainfield, N. J. Memb. Am. Soc. C. E., Memb. Am. Soc. for Testing Materials, Memb. Am. Iron and Steel Institute. Overseer of the THAYER SCHOOL OF CIV. ENG. T.S.

**Frank Berry Sanborn, B.S.** Prof. of Civil Eng., Tufts College, Mass. Consulting practice in engineering. Memb. Am. Soc. C. E., of Boston Soc. C. E., and Soc. for Prom. Eng. Educ. T.S. Res. Cambridge B, Mass. Director Boston Insulated Wire & Cable Co. Author of "Mechanics' Problems," and "A Public Health Survey of Lawrence, Mass." Inventor of a speedometer for boats, and low-pressure gauges. During the summer in charge of the experiment. dept. Am. Steam Gauge & Valve Mfg. Co.

*Thomas Flynn.* Res. 511 East 134th St., New York City. T.S. (1910)

**\*\*William Robert Michie.** Died Feb. 2, 1899, at Johnstown, Pa. (See Annual for 1899.)

### 1890

**Amasa Burton Clark, B.S.** President of Clark & Company, Engineers and contractors, 225 Fifth Ave., New York City, and Stephen Girard Bldg., Phila. Res. Germantown, Pa. Specialty: foundations, having designed, constructed or repaired foundations for a variety of structures in New York and elsewhere. President of Thayer Society of Engineers of Dartmouth College 1909, T.S.

**William Nelson Hazen, B.S.** (New Hampshire College.) Eng. for Am. Concrete-Steel Co., Essex Bldg., Newark, N. J. Res. 361 Park Ave., E. Orange, N. J. Memb. Am. Soc. C. E., and Soc. for Testing Materials. T.S. (1912)

**Hiram Newton Savage, B.S.** (New Hampshire College.) Supervising Engineer in the U. S. Reclamation Service. Office at Great Falls, Montana. Address also care of U. S. Reclamation Service, Washington, D. C. Supervising the numerous projects in the Northwest, nine under construction; five in operation. Memb. Am. Soc. C. E. T.S.

**George Pillsbury Wood, B.S.** (New Hampshire College.) Asst. Eng., Board of Water Supply, City of New York, from Nov. 14, 1906, to Feb. 28, 1911. Since latter date Div. Eng. in charge of Peekskill Div. Res. 217 Walnut St., Peekskill, N. Y. Memb. of Am. Soc. of C. E. T.S.

#### 1891

**Hardy Smith Ferguson, B.S.** Chief Eng. Great Northern Paper Co. and West Branch Driving and Reservoir Dam Co., Mil-  
linocket, Me. Memb. Am. Soc. C. E. Memb. Am. Soc. Mech. Eng.,  
and Can. Soc. C. E. T.S. Consulting Engr. for water power  
development, and construction and equipment of manuf'g plants.  
Since Feb., 1911, Consulting Eng., 200 Fifth Ave., New York City.

**Edward Dana Hardy.** U. S. Asst. Eng., Supt. of the Wash-  
ington Aqueduct and Washington Aqued. filtration plant. 1st and  
Douglas Sts., N. W., Washington, D. C.; res. 2425 First St., N.  
W. Memb. Am. Soc. C. E., New Eng. Water Works Assoc., Am.  
Water Works Assoc., Washington Soc. of Engrs., and Wash.  
Acad. of Sciences. T.S. (1912)

**George Francis Sparhawk, B.L.** Engineer in charge of  
drafting room, American Bridge Co. Address: Care of Am.  
Bridge Co., Ambridge, Pa. Res. 490 East End Ave., Beaver, Pa.  
Memb. Am. Soc. for Testing Materials. T.S.

**\*\*Fred Ellsworth Lamb, B.S.** Died at Northfield, Vt., July  
28, 1893. Was U. S. Junior Engr. and bridge draftsman.

#### 1892

**Arthur Willard French.** Prof. of Civ. Eng. and head of the  
Dept., Worcester Polytech. Inst., Worcester, Mass. Res. 202 Rus-

sell St. Memb. Am. Soc. C. E., Am. Soc. Prom. Eng. Educ., National Cement Users Assoc. and Nat'l Geog. Soc. T.S. Consulting Engr. for reinforced concrete construction, etc.

*Charles Frederick Robinson, A.M., S.T.B.* Pastor of Central Congregational Church, Derry, N. H. Res. 11 Crescent St., Village Station, Derry.

**\*\*William Hazelton Puffer.** Died at Pecos, Texas, of cerebro-spinal meningitis, March 17, 1912. See Annual for 1912.

## 1893

**Herman Edward Abbott.** Asst. Eng. East Jersey Water Co., Paterson, N. J. Res. 158 Ellison St. T.S. Also consulting practice.

**Edwin John Morrison, B.L.** Pres. and Chief Eng. Hastings Pavement Co., 25 Broad St., New York, and Pres. Asphalt Block Pavement Co., Toledo, Ohio. Res. 55 Fanshaw Ave., Yonkers, N. Y. Has been twenty years with this company, and responsible director in the successful execution of many large contracts in the Eastern and Middle states, in which opportunities have been found for the employment of a considerable number of THAYER SCHOOL men from year to year. Member of the Chamber of Commerce. Pres. of the Dartmouth Club of New York, 1909-10 T.S.

**John Walker.** Lumber manufacturer, Newmarket, N. H.

**Sidney Grant Walker, B.S.** Lately Civil Eng. and Contractor in Hawaii. Since 1905, Insurance Engr. for the Manufacturers, Rhode Island, Mechanics, State, Enterprise, and American Mutual Fire Ins. Co's., John R. Freeman, President, 815 Grosvenor Bldg., Providence, R. I. Res. 50 Montague St. Memb. Am. Soc. M. E. T.S.

## 1894

**Percy Lovejoy Barker, B.S.** (New Hampshire College.) Supervisor of Bridges and Buildings, N. Y. C. & H. R. R. Co., Jersey Shore, Penn. T. S. (1912)

**Edward Monroe Stone, B.S.** (New Hampshire College.) Architect and Engineer, 49 Pearl St., Hartford, Conn. Memb. Conn. Soc. Civ. Engrs. Home address: 11 Summer St. T.S.

**Henry Allen Symonds.** Consulting Eng., 70 Kilby St., Boston, Mass.; hydraulic work and water supply a specialty, including management of works. Res. 174 Lexington St., Waverly, Mass. Memb. Boston Soc. C. E. and New Eng. Water Works Assoc. T.S.

1895

**William Marston Ames, B.S.** Contracting and General practice, Berwick, Me. Memb. Maine Soc. Civil Engrs.

**Fred Rufus Davis.** Inspector Assoc. Factory Mutual Fire Ins. Co's. until Sept. 1, 1911. Perm. Goffstown, N. H. Assoc. Memb. Am. Soc. C. E. T.S.

**William Hayden Ford, B.S.** Civil and Consult. Engr. 1024 Arcade Bldg., 15th and Market Sts., Philadelphia, Pa. Memb. Am. Soc. C. E. and Engrs. Club of Philadelphia. T.S.

**Arthur Benjamin Ilsley, B.S.** Engineer of Bridges, Southern Ry., 1300 Penn. Ave., Washington, D. C. Res. 2930 Macomb St., Cleveland Park, N. W. Assoc. Memb. Am. Soc. Civ. Engrs. T.S.

**John Young Jewett, B.S.** (New Hampshire College.) Cement Expert, U. S. Reclamation Service, having supervision of all matters relating to purchase, test, and shipment of cement for the Service. Headquarters at 408 Commonwealth Bldg., Denver, Colo. Assoc. Memb. Am. Soc. C. E. Memb. Am. and International Soc. for Testing Materials, and Nat'l Assoc. Cement Users. Investigating influence of alkali on concrete. T.S.

**George Woodbury Parker, B.S.** Since Oct. 18, 1905, firm of Welsh and Parker, Civ. Engrs. and general insurance agents, Hudson, Mass. (1911)

**William Collins Phelps, B.S.** Principal Assistant Engineer, Interborough Metropolitan Co., 165 Broadway, New York City. Perm. address: 3 Hancock Park, Cambridge, Mass. Memb. Am. Soc. C. E. Member and Treas. T.S.

**Herbert Russell Thurston, B.S.** Reported by W. B. Plumer of 1897 to be with the Assoc. Factory Mut. Fire Ins. Cos., 31 Milk St., Boston, Mass. Home address: 27 Prospect St., Somersworth, N. H. T.S. (1911)

**Frank Hamant Trow, B.S.** Lately Div. Engr. on construction of Wachusett Dam for Met. Water and Sewerage Board,

Clinton, Mass. Since Oct. 1, 1908, Chief Engr. for Winston & Co., on the contract for the main dams for the Ashhokan reservoir, Brown Station, N. Y. Assoc. Memb. Am. Soc. C. E. T.S.

**\*\*Robert Doty Maynard, A.B.** Died in Springfield, Mass., May 26, 1906.

*Arthur Allan Adams, B.S.* For many years Superintendent of Streets and Sewers, Springfield, Mass. Pres. of the firm of Birnie, Adams & Ruxton Construction Co. Res. 78 Westminster St. T.S.

*Charles Timothy Rossiter, B.S.* Farmer and cattle breeder, Claremont, N. H. In a letter not long ago testified to the value of college work as contributing decidedly to large success in his occupation, to which he was impelled by ill health. Member N. H. State Board of Agriculture.

*Benjamin Franklin Welton, B.S.* Efficiency engr. in charge of efficiency and budget, Advisory Staff, Board of Estimate and Apportionment, 51 Chambers St., New York City. Res. at 1 Weiner Place, Tompkinsville. Charter Memb. of Efficiency Soc. Assoc. Memb. Am. Soc. C. E. T.S. Author of article in *Annals Am. Soc. Polit. and Social Science*, May, 1912, on "Efficiency in Municipal Labor".

#### 1896

**Edwin Roscoe Davis, B.L.** Div Eng. on construction of viaducts of reinforced concrete on the Key West Extension of the Florida East Coast Ry., Marathon, Fla. T.S. (1911)

**William Harry Langmaid, B.S.** Permanent address: Pike, N. H. With the Pike Mfg. Co. (quarries and factories in Ark., Ind., Vt., and Littleton, N. H.) during the past fifteen years, surveys and office work. Res. East Haverhill, N. H. (1912)

**John Henry Letteney, B.S.** Contractor for dredging, dock, river and harbor improvements. 101 Tremont St., Boston, Mass. Res. 18 Allerton Road, Newton Highlands, Mass. T.S.

**Samuel Julian Lord, M.L.** Chief Engineer of the City of Manchester, N. H., and head of the Board of Street and Park Commissioners. Mr. Lord has made the office of the city engineer a recognized and popular "institution" of the city. T.S.

**George James McIndoe, B.S.** Asst. Eng. in charge of construction department, Hastings Pavement Co., 25 Broad St., New York City. Res. 2685 Heath Ave., Bronx Borough. T.S.

**Arthur William Stone, B.S.** Engineer on construction, and Gen. Supt. of Works, for Wm. Bradley & Son, Cut Stone Contractors, New York and Brooklyn, Cleveland & Bedford, Ind. 547 Vernon Ave., Borough of Queens, New York City. Perm. Hartford, Vt. T.S. (1910)

**\*\*Frederick Reginald French.** Lately Assistant Chief Engineer for harbor works, Manzanillo, Mexico. Died Nov. 20, 1904, at Santa Barbara, Cal. (See Annual for 1905.)

*Harlan Augustus Cochran, B.S.* Permanent address: West Derry, N. H. Since Feb., 1905, associated with the Perkins Hardy Co., Shoe Mfg., West Derry, N. H. (1909)

*Charles Arthur Holden, B.S.* Graduate, T. S. C. E. 1901. (See beyond.)

**\*\*Alexander Anderson McKensie, B. S.** Died at Hanover, N. H., August 25, 1904. Was Supt. of Bldgs. and Engr. for Dartmouth College. (See Annual for 1904.)

### 1897

**Henry Norwood Chase, B.S.** Lately U. S. Junior Engr., since August 3, 1904, on harbor improvement, U. S. Engineer Office, Boston, Mass. Since May 16, Engineer for G. H. Brugmann and Bros., 293 Marginal St., East Boston, Mass. Perm. West Harwich, Mass.

**Moses Harry Hoyt, B.S.** Asst. Chief Draftsman, Belmont Iron Works, 22nd St. and Washington Ave., Phila. Res. 102 E. Franklin St., Media, Penn. Perm. 92 Charles St., Fitchburg, Mass. (1909)

**Samuel Alexander McCoy, B.S.** Since July 18, 1909, member of the firm of Boynton, Church & McCoy, Contractors, 603 German Life Bldg., St. Paul, Minn. "Handling general railroad construction in the Northwest." Res. 1725 Eleventh Ave., Spokane, Wash. Memb. Am. Soc. Civ. Engrs. T.S. (1912)

**Hugh Burdette Tabor, B.S.** Asst. Gen. Representative U. S. Steel Products Export Co., 30 Church St., New York City. Agency at 544 Bartolomé Mitre, Buenos Aires, Argentine Republic, S. A. Perm.: Hanover, N. H. T.S.

**\*\*Sidney Willis Bowles.** Died at Easton, N. H., March 7, 1902. Was Forester and Overseer of Dartmouth College Grant, N. H. (See Annual for 1902.)

*Edward Jothan Johnson, B.S.* Formerly City Engineer, Nashua, N. H. Now Civ. Eng. Spokane, Wash., 219-220 Lindelle Bldg. Res. 841 Cliff Ave. Memb. N. E. Water Works Assoc., and Boston Soc. C. E. T.S.

*William Blaisdell Plumer, B.S.* Asst. Supt. Plan Dept., Assoc. Fact. Mut. Fire Ins. Cos., 31 Milk St., Boston, Mass.

*Herbert Andrew Warden, B.S.* One year post-graduate study at Cornell University. Electrical Engr., 14 South Water St., Newburg, N. Y. (1910)

**\*\*Herbert Augustus Rowe, B.S.** Died at Holyoke, Mass., October 8, 1901. Was Mill Engr. for Tower and Wallace. (See Annual for 1902.)

## 1898

**James Leland Averill.** (C.E. Norwich University, also.) Ch. Eng. for Hamilton & Chambers, 29 Broadway, New York City, since May 15, 1911. Perm. Northfield, Vt. Assoc. Memb. Am. Soc. C. E. T.S.

**William Hoyt Balch, B.S.** Eng. Aberthaw Construction Co., Boston, Mass., up to 1908. Since March 1, 1909, Asst. Director, Direccion de Obras Publicas, Republica Dominica, Santo Domingo City, W. I. Res. Hudson, Mass. Memb. Am. Soc. C. E. and Boston Soc. C. E. T.S.

**Maurice Fritchley Brown, B.S.** Chief Engineer Boston Bridge Works, 47 Winter St., Boston, Mass. Res. Winchester. Memb. Am. Soc. C. E., of Boston Soc. C. E., and of Am. Ry. Eng. Assoc. T.S.

**William Hale Ham, B.S.** Since March, 1909, consulting eng. associated with French & Hubbard, Cons. Engrs., 88 Pearl St., Boston, Mass. Res. 37 Westbourne Road, Newton Center, Mass. Memb. Am. Soc. C. E. Memb. Nat. Assoc. of Cement Users; Chairman of its Comm. on Insurance.

**John Leroy Mann, B.A.** Formerly Assoc. Professor in Civil Engineering at the THAYER SCHOOL OF CIVIL ENGINEERING. Asst. Engr. Reclamation Service, Belle Fourche Project, 1905, until 1908. Since then Ingeniero del Gobierno, Dept. Public Works, Do-

minican Republic, W. I., in the following capacities: Engineer Director of Irrigation in Monte Cristi, Acting Director General, Chief Engr. Ferrocarril del Norte, and Director General of Public Works since Apr. 1, 1912. Address: Santo Domingo City. Memb. Am. Soc. C. E. Memb. Am. Soc. Eng. Contractors and of Boston Soc. Civ. Engrs. T.S.

*Harold Bemis Shattuck, B.S.* Assoc. Professor of Civil Eng., Penn. State Coll. Res. 122 West Beaver Ave., State College, Penn. Degree of B.S. in Civil Engineering from Pennsylvania State College, June, 1904. Memb. of Soc. for Prom. Eng. Educ., Engrs.' Soc. of Pennsylvania, and Nat. Geo. Soc. Perm. 17 Orange St., Nashua, N. H.

## 1899

No graduates. The seven members of this class were granted leave of absence for one year to accept professional employment. All the members were graduates of Dartmouth College in 1898. Three were graduated from the THAYER SCHOOL in 1900, one in 1901, and one in 1903.

*Myron George Littlefield, B.S.* Since July 20, 1908, draftsman, McClintic-Marshall Construction Co., Rankin, Pa., where he may be addressed. (1911)

*Oscar Persons Tabor, B.S.* Draftsman for the Norcross Bros. Co., Worcester, Mass. Address: 286 Lincoln St.

## 1900

**Harry Wallace Clark, B.S.** Concrete foreman for Puget Sound Mills & Timber Co., Port Angeles, Wash. Res. 1217 Mitchell St., Victoria, B. C.

**John Alfred Gilman, B.S.** Civil and Mining Engineer in Greenville, Ky. Gen. Mgr., Sec. and Treas., Greenville Light and Water Co.

**Albert Henry Greenwood, B.S.** Since April 1, 1910, in private practice, firm of Greenwood & Noerr, Cons. Engrs., 847 Main St., Hartford, Conn. Res. Grand View Terrace. Asso. Memb. Am. Soc. C. E. Memb. Conn. Soc. C. E. T.S. Largely mill and factory construction, including light, heat, and power.

**George Henry Nolan, B.S.** Engineer for the Brazilian Branch of the Snare and Triest Co., Woolworth Bldg., 233 Broad-



way, New York City. Sailed for Rio Janeiro, November, 1912. Perm. Middleboro, Mass. T.S.

**Luther Stevens Oakes, B.S.** Lately Div. Eng. Great Northern and Northern Pac. Rys. Member of the contracting firm of Winston Bros. Co., 801 Globe Bldg., Minneapolis, Minn. Now at Lemont, Ill., on contract for excavating Sect. 2 of Calumet Sag Channel of Sanitary Dist. of Chicago. Perm. care Dr. H. Burbridge, Woodstock, Vt. Assoc. Memb. Am. Soc. Civ. Engrs. T.S.

**Herbert Leslie Watson, B.S.** With McHenry and Murray (lately Vice-Pres. and Elec. Eng., N. Y., N. H. & H. R. R.) consulting engineers on a large contract for electrification work,—design and construction; New Haven, Conn. Chief Draftsman in charge of office, etc. Res. 201 Ellsworth Ave. Perm. care of D. A. Watson, 325 Young St., Manchester, N. H.

**Thomas Tupper Whittier, B.S.** Assistant Engineer with George F. Hardy, 309 Broadway, New York City. Res. 395 Adelphi St., Brooklyn, N. Y. Memb. Am. Soc. C. E. T.S.

**Philip Harold Winchester, B.S.** Since Jan. 1, 1910, Div. Engineer, St. Lawrence Div., N. Y. C. & H. R. R. R. Res. 303 Ten Eyck St., Watertown, N. Y. Assoc. Memb. Am. Soc. C. E. T.S.

*Albert Leet Galusha, B.S.* A. L. Galusha & Co., 215 Norfolk St., Dorchester Center, Mass. Manufacturing marine and land gas producers for power purposes.

*John Leonard Sanborn, B.S.* Student two years; failed to qualify for graduation. Reported to be with Elmore & Hamilton, Jamaica, Long Island, N. Y. (1909)

*Edward Beaumont Wardle, B.S.* Engineer in charge of construction of pulp and paper mills for Geo. F. Hardy, Hydraulic and Mill Engr. and Architect (Dartmouth Coll., 1888), 309 Broadway, New York City. Duties chiefly at the home office. Home address: 16 Daily St., West Nutley, N. J. Memb. Am. Soc. C. E. T.S.

*\*\*John McQuesten French, B.S.* Died suddenly August 29, 1906. (See Necrology in Annual for 1906.)

1901

**John Albert Anderson, B.S.** 416 Third St., Baton Rouge, La. Dealer in books, stationery, school books, pictures, music, and college supplies.

**Alvah Tennant Fowler, B.S.** Topographical Engr., U. S. Geological Survey, Washington, D. C. Perm. 117 Center St., Concord, N. H. Member of National Geographic Soc. and Washington Soc. Engrs. T. S. Since Dec., 1912, in charge of topographic work U. S. Geol. Survey in the Hawaiian Ids.

**Charles Arthur Holden, B.S.** Professor of Civ. Eng., THAYER SCHOOL OF CIVIL ENGINEERING, Hanover, N. H. Memb. Am. Soc. for Prom. Eng. Education. Assoc. Memb. Am. Soc. C. E. Memb. National Geog. Soc. T.S. Local practice as surveyor and civil engineer.

**Charles Hamilton Hoyt, B.S.** Consulting Civ. Eng. and Contractor, 503 Evans Bldg., Washington, D. C. Specialty, highway work. Res. 1002 N St., N. W. Member of law firm of Hanley & Hoyt, Evans bldg.

**William Loveland Hutchinson, B.S.** Res. at Cecil, Washington Co., Pa., 20 miles from Pittsburg, where he is also managing his own stock farm. (1912)

**Clarence Erwin Paddock, B.S.** Lately with Berlin Construction Co., Berlin, Conn. Since Sept. 1, 1909, Teacher of Applied Mathematics and Drafting, Springfield Technical High School. Res. 13 Northampton Ave. Springfield, Mass. During the summer with the National Bridge Co., Montreal, Can.

**Charles Sargent, B.S.** Asst. Eng. U. S. Reclamation Service, Mitchell, Neb. Perm. Walpole, N. H.

**Frank Dana Sears, B.S.** Supervising Prefect of Girard College, Philadelphia, Pa. (1912)

**Samuel Justin Smith, B.S.** Lately Asst. Eng., North Pacific R. R. Member of contracting firms of G. A. Carlson & Co., and Carlson, Chindahl & Co., railroad contractors, 322 Fernwell Bldg., Spokane, Wash., and Summerland, B. C. Perm. Windsor, Vt.

**\*\*John Hutchinson Wood, B.S.** Lately Assistant Engr., Dept. of Public Works, Bureau of Water, Pittsburg, Pa. (See Annual for 1910.)

*John William Ash, B.S.* Lately Asst. Eng. for Southern Railroad. Civil Engr. and Contractor, Chattanooga, Tenn. Just completed reinforced concrete viaduct for South. Ry. and Ill. Cent. Ry. at Birmingham, Ala. Now building five-story concrete warehouse and cold-storage plant at Chattanooga.

*Edgar Randall Cate, B.S.* Lately member of firm, New Jersey Boiler Co., Boonton, N. J. Pittsburg representative of Westinghouse, Church, Kerr & Co., 10 Bridge St., New York City. Address: Union Bank Bldg., Pittsburg, Pa. T.S.

*Jasper Manlius Gibson, B.S.* Lately with Post & McCord, New York. Now consulting eng'r on structural design and foundations, care Boller, Hodge and Baird, 111 Broadway, New York City. Res. 161 W. 130th St. Memb. Am. Soc. Civ. Engrs. T.S.

*Charles Augustine Rich, B.S.* Returned from South Africa in April, 1905. Electrical Engr. for the Central Illinois Light Co., Peoria, Ill. Res. 3116 Western Ave.

*Wilfred Carey Risley, B.S.* Field Engineer of the Dominion Iron & Steel Co., P. O. Box 2, Sydney, Nova Scotia. Res. 154 Whitney Ave. In charge of construction of foundations, railway tracks and sewers for six million dollar plant extensions. Lately built 120 by-product coke ovens, two 300-ton blast furnaces, two 500-ton open hearth furnaces, bar, wire, and nail mills, power plant, water works, and a steam turbine plant. T.S.

*Horace Holmes Sears, B.S.* City Engr. Redwood City, San Mateo Co., Cal. Licensed Surveyor, State of Calif. Head of Drawing Dept., John C. Fremont High School, Oakland. Charter Memb. of the Sacramento Civil Engrs. Assoc. T.S.

*Embert Hiram Sprague, B.S.* After residence of six years returned from South Africa. Lately Engr. in New York City. No report.

## 1902

*John Gilbert Andrews, B.S.* Contracting Engr. Boston Bridge Works, Inc., 47 Winter St., Boston, Mass. Res. 131 Bacon St., Natick, Mass. T.S.

*Charles Richard Chase, B.S.* Asst. Eng. in charge of contract No. 42, Barge Canal, Dept. of New York State Engineers. Barge Canal Office, Utica, N. Y. Res. 16 Hobart St., Utica, N. Y.

Perm. Rochester, N. H. 3d Vice-President Albany Soc. C. E. Memb. Soc. of Engrs. of Eastern New York. (1912)

**John William Crowell, B.S.** Since Oct. 1, 1905, Professor of Civ. Eng. at Mt. Allison University. P. O. Box 35, Sackville, N. B., Canada.

**Frank Ezekiel Cudworth, B.S.** Engr. for Holbrook, Cabot & Rollins Corporation, 331 Madison Ave., New York City. Memb. Am. Soc. Eng. Contractors. T.S. Past six months Res. Engr. on pneumatic foundation for 50 Broad St. bldg. Res. 221 Eastern Parkway, Brooklyn.

**Donald Derickson, B.S.** Since Sept., 1912, Head of the School of Civil and Sanitary Eng., and Professor of Bridge and Structural Eng., Tulane Univ., New Orleans; La. Memb. Louisiana Eng. Soc. Private practice, designs and reports on bridges and structures of reinforced concrete.

**Edgar Hayes Hunter, B.S.** Civil Engr. and Contractor; construction of large hospital extension, new bank bldg., and residences. Hanover, N. H. T.S.

**James Bradford McIntyre, B.S.** Lately Gen. Foreman of Erection North Works Ill. Steel Co., Chicago, Ill.; erected the new plant of the Steel Corporation at Gary, Ind. Supt. Ill. Steel Warehouse Co. since April, 1912; 21st and Gratiot Sts., St. Louis, Mo.; perm. Randolph, Vt. Memb. Western Soc. of Engrs. (1912)

**Francis Beal Marsh, B.S.** Since May 10, 1907, Asst. Engr., N. Y. Board of Water Supply, Designing Dept., 165 Broadway, New York City. Home: 19 Pinehurst Ave., New York City. Assoc. Memb. Am. Soc. Civ. Engrs., and Soc. of The Municipal Engrs. of New York. T.S

**Frank Warren Newhall, B.S.** Chief Engr., Coke Works and northern coal mines of Republic Iron & Steel Co. Inspector of Safety and Operation. Address: Republic, Fayette Co., Pa. Perm. Danvers, Mass. T.S.

**Arthur Henry Norris, B.S.** Since Nov., 1907, in private practice, 1648 Park Ave., Fremont, Neb.; largely drainage work. Perm. 40 Pond St., Hyde Park, Mass.

**Warren Fuller Rugg, B.S.** Asst Engr. N. Y. Board of Water Supply. Since April 1, 1909, Asst. to Section Engr. on construction of Catskill Aqueduct, including open cut, grade tunnel

and steel pipe siphon. 767 Elm St., Peekskill, N. Y. Assoc. Memb. Am. Soc. C. E. T.S.

**Everett Mellen Stevens, B.S.** President of Nashua Granite Co., 254 Main St., Nashua, N. H. Asst. Sales Mgr., Nashua Machine Co., 127 Federal St., Boston, Mass. T.S.

**Albert Lyman True, B.S.** Jun. Eng. U. S. Eng's. Office, Portland, Me., until March 10, 1906, when he mysteriously disappeared. Jas. S. Smith, a classmate, has used every effort to solve the mystery, but cannot learn whether he is alive or dead.

*Earl Francis Whitaker, B.S.* Since May 1, 1909, Purchasing Agent for J. H. Williams & Co., drop forgings, 150 Hamilton Ave., Brooklyn, N. Y. Address: 7815 4th Ave., Brooklyn. T.S.

### 1903

**Carroll Worthen Davis, B.S.** Lately Supt. of construction, Harlem Contracting Co., New York. Civil Engr. and Surveyor: surveys, drainage, contracts for well-boring and drilling. Corning, Tehuma Co., Calif. T.S.

**Royal Belden Doane, B.S.** Designer and Estimator, Berlin Const. Co., Berlin, Conn., since Apr. 15, 1912. Res. Maple Hill, New Britain. T. S.

**Leslie Boynton Farr, B.S.** President of the Harlem Contracting Co., 2 Rector St., New York. Manufacture and construction of asphalt block pavement. Res. Ft. Washington Ave. and 179th St. T.S.

**Harry Cyrus Hill, B.S.** State Engineer of New Hampshire, Jan., 1910, to Mar., 1912. Engineer for the Lane Const. Corporation, Meriden, Conn., since March 22, 1912. Res. 58 North St., Binghamton, N. Y. Memb. Am. Soc. C. E., Am. Assoc. for Highway Improvement, Mass. Highway Assoc., and T.S.

**Maurice Joseph Leahy, B.S.** Asst. Eng. for Geo. F. Hardy, Mill Architect and Hydraulic Eng., 309 Broadway, New York City. On construction for Laurentide Co., Ltd., Grand Mere, P. Q. Perm. South Hadley Falls, Mass. Assoc. Memb. Am. Soc. C. E. T.S.

**Locke McIndoe Perkins, B.S.** App't'd Eng. of Maint. of Way of lines west of Paradise, Mont., June 15, 1911; jurisdiction of several thousand miles of railroad. Gen. Office, North Pac.

Ry., Tacoma, Wash. Res. 2111 No. Washington Ave. Memb. Am. Ry. Eng. Assoc.

**Harold Edward Plumer, B.S.** Chief Eng. of branch office of Turner Construction Co. of New York, located in Buffalo, N. Y., 312 Prudential Bldg. Memb. Am. Soc. C. E.; T.S. Res. University Club, Buffalo, N. Y.

**John Endicott Porter, B.S.** Asst. Eng., office of Engr. of Structures, N. Y. C. & H. R. R. R. Co., New York City. Res. 4 Ashburton Place, Yonkers, N. Y. Assoc. Memb. Am. Soc. C. E. T. S.

**Harold Samuel Richmond, B.S.** (Norwich Univ., Vt.) Late-ly designer of structures, N. Y. C. & H. R. R. R. Co. Since Mar., 1913, structural engr. for Gibbs & Hill, cons. elect. engrs.; lately designing catenary system and power house structure, N. & W. Ry. Room 701 Penna. Ry. Station, New York City. Home: Harbtsdale, N. Y., or Northfield, Vt. T.S.

**George Arthur Sampson, B.S.** Assistant to Robert Spurr Weston, Consulting Sanitary Engr., 14 Beacon St., Boston, Mass. Res. 695 Washington St., Brighton, Mass. Assoc. Memb. Am. Soc. C. E., Memb. Boston Soc. C. E., and New Eng. Water Works Assoc.

**Albert Smith, B.S.** Formerly with the U. S. Steel Co., Chicago. Prof. of Structural Engineering, Purdue University, Lafayette, Ind. Res. 1022 Seventh St., West. Assoc. Am. Soc. C. E. Memb. Indiana Eng. Soc. Memb. of Western Soc. Civ. Engrs. Fellow of Ind. Acad. of Science. T.S. Author of "Stresses in Simple Framed Structures" and "Wind Pressure on Buildings by Measurements".

**Fred Caswell Stanton, B.S.** Asst. Engr. on the Panama Canal, Cristobal, C. Z. Perm. Vineyard Haven, Mass. Assoc. Memb. Am. Soc. C. E. Memb. Internat'l. Assoc. of Navigation Congresses. T.S. In charge of construction of Colon breakwaters, including since Jan., 1913, rock quarry at Porto Bello.

**Arthur Clarence Tozzer, B. S.** New York City Gen'l Supt. for the Turner Construction Co., 11 Broadway, New York City. Perm. 62 Nahant St., Lynn, Mass. Assoc. Memb. Am. Soc. Civ. Engrs. Memb. Engineers' Club, New York, and Nat'l Association of Cement Users. T.S.

**John Walker, B.S.** Lately Div. Eng. Mississippi Div. Ill. Cent. Ry. Oct., 1906-July, 1910, draftsman in Construction and Maint. of Way, Depts., U. P. R. R. Since that Asst. City Engr. of Cheyenne, Wyo. Res. 522 West 21 St. T.S. (1911)

**Arthur Ellsworth Winslow.** (C. E. Norwich Univ.) Professor of Civil Engineering, Norwich University, Northfield, Vt. Assoc. Memb. Am. Soc. C. E.

**Herbert Carroll Adams, B.S.** Checker for Am. Bridge Co., Elmira plant. Address: Elmira Heights, N. Y. (1909)

**Herman Keidel Clifford de Anguera, B.S.** Graduated from Rochester Theological Seminary in May, 1909. Religious work as director of Y. M. C. A., 10 Elm St., Worcester, Mass.

**Harry Wilfred Fitts.** Chief estimator and designer for the New England Structural Co., 110 State St., Boston, Mass. Res. 79 Pembroke St., Newton, Mass. Memb. Boston Soc. C. E. T.S.

**Arthur Weston Hare.** Since July 22, Estimator for Norcross Bros. Co., Contractors, Worcester, Mass. Res. North Grafton, Mass. T.S. (1912)

**Clarence Kent Hosford, B.S.** Lately Asst. Eng. U. S. Reclamation Service. With St. Croix Paper Co., Woodland, Me. Home address: North Thetford, Vt. Vt. Legislature, 1908. (1912)

**George Willard Newman, B.S.** Supt. for Cia Carbonifera "Agujita y Anexas", S. A., "Mineral de Lampacitos"; since Jan. 15, 1910. Baluarte, Coahuila, Mexico. Perm. 49 Union St., Keene, N. H. (1912)

**Thomas Richard Remsen, B.S.** Engineer for George F. Hardy, Mill Architect and Hydraulic Engr., 309 Broadway, New York. Res. 283 Jefferson Ave., Brooklyn, N. Y. Assoc. Memb. Am. Soc. C. E. T.S.

**Chester Arthur Studwell, B.S.** Since Dec., 1911, Village Engineer, Port Chester, N. Y. Res. 6 Monroe Place. Assoc. Memb. Am. Soc. C. E.; T.S.

#### 1904

**Harold Dearborn Comstock, B.S.** Asst. Eng., U. S. Reclamation Service, in charge of construction and operation of the Pathfinder dam, Oct., 1910, to July, 1913. Temporarily in charge of works at Mitchell, Neb. Perm. Chelsea, Vt. Assoc. Memb. Am. Soc. C. E. T.S.

**John William Mair.** Lately Engr. for Marc Eidlitz & Son, general contractors, New York City. Res. 100 W. Lincoln Ave., Mt. Vernon, N. Y. Assoc. Memb. Am. Soc. C. E. T.S. (1910)

**Harold Marston Morse, B.S.** Lately with International Paper Co., at Glens Falls, N. Y., and until June, 1913, Supt. Construction for Elkhart Hydraulic Co., Elkhart, Ind; now on design and construction of electrical plants, 1303 Citizens Bldg., Cleveland, Ohio. Perm. Hanover, N. H.

**Fred Wheeler Osgood, B.S.** Asst Engr. for New York Board of Water Supply, plans, estimates and inspection of steel pipe and cut and coverwork for southern Aqued. Dept. Sect. No. 2, White Plains Div. Memb. Munic. Engrs. Soc. of New York. Address: 126 S. Lexington Ave., White Plains, N. Y. Perm. Dunstable, Mass.

**Carroll Paul, B.S.** (Son of Prof. H. M. Paul, 1875.) Since Aug., 1907, Asst. Civ. Engr. U. S. N. After June 1, 1911, at Cavite, Luzon, P. I., in charge of construction and operation of power plants, and Public Works Officer, Olongapo. Perm. Bureau of Yards and Docks, Navy Yard, Washington, D. C.

**Frank Stewart Perham, B.S.** Formerly Eng. and Supt. of Construction for Bryan & Co., and others, in Jacksonville; for the U. S. Naval Station, Key West, Florida, etc. (1910)

**George Albert Reed, B.S.** Since April, 1907, City Engineer of Barre, Vt. Home address: 34 Orange St., Barre. Lately built a large storage reservoir for the city of Barre, and changed the course of the river by extensive excavation and retaining walls. Sec. of Vermont Soc. of Engrs.

**Howard Leon Ropes, B.S.** Since Feb. 1, 1912, Asst. Supervisor of track, N. Y. C. & H. R. R. R., St. Lawrence Div. Res. 154 Winslow St., Watertown, N. Y. T.S.

**Albert Henry Schilling, B.S.** Contracting Engr. for Berlin Construction Co., Berlin, Conn. Bridges and all steel structural work. Res. 29 Lincoln St., New Britain. Memb. Conn. Soc. C. E.

**Sherman Smith, B.S.** Asst. Eng. Grand Trunk Pac. Ry., Melville, Saskatchewan, Canada. In charge of all engineering work on a division 1,800 miles long. Assoc. Memb. Canad. Soc. C. E. Memb. Am. Ry Engineering Assoc.

**Carl Burpee Worthen, B.S.** Since Aug., 1908, Supt. of construction on Los Angeles aqueduct, Saugus Div., Section I. Ri-



cardo, Calif. T.S. Perm. 103 Youle St., Melrose, Mass. (1910) Reported as engaged in Oahu, Hawaii, building aqueduct for irrigation.

**\*\*Ralph Carroll Soper, A.B.** Lately Asst. Eng. U. S. R. S., Shoshone project. Drowned, June, 1910. (See Annual for 1910.)

*Harold Miner Hess, B.S.* Since Apr. 1, 1911, Chairman Missouri Actuarial Bureau (Fire Insurance), Pierce Bldg., St. Louis, Mo. Res. 1215 Amherst Place.

*Byron Wynne Matteson, B.S.* Since Oct., 1907, Asst. Eng. with City Engr. of Los Angeles, Cal. Res. Buckingham Apartments, Bixel and Ingraham Sts., Los Angeles Co., Cal. Memb. Engrs. & Architects Assoc. of So. Cal. (1912)

*Oscar Alexander Mechlin, B.S.* Degree of C. E. Geo. Washington Univ., 1906. Since Mar., 1913, Prof. of Civ. Eng. in that university. Member of firm Mechlin & Starr, Architectural Engrs. Wilkins Bldg. Res. 3203 R. St., Washington, D. C. Member Washington Soc. Engrs. Assoc. Memb. Am. Soc. C. E.

#### 1905

**Owen Long Burdett, B. S.** Since July, 1908, Asst. Engr., Dept. N. Y. State Engr. & Surveyor. In charge of various work, including construction of over 12 miles of Canal, etc. Res. 48 North Ashland Ave., Buffalo, N. Y.; perm. Wakefield, Mass. T. S. On Aug. list of applicants for membership in Am. Soc. C. E.

**Harold Newton Cross.** Formerly with U. S. Reclamation Service; also the Hudson Companies, Hoboken, N. J. Since June, 1912, in City Engr's. Office, Haverhill, Mass. Home address: Atkinson, N. H.

**Franklin Henry Stowell, B.S.** General Contractor, 1200 Tribune Bldg., Chicago, Ill. Res. 218 So. Kensington Ave., La Grange, Ill. Memb. Western Soc. Engrs. T.S.

**Crosby Tappan.** Construction Eng., Cumberland Valley R. R. (branch of Penna. R. R.). Has built eighteen miles of new double track on grade revision, reinforced concrete culverts and arches, spans from 20 to 100 ft. (See *Eng. News*, April 8, 1909.) Address: General office of this road, or Glen Apartments, Chambersburg, Pa. Memb. Engrs. Soc. of Penna. T.S.

**Morton Owen Withey, B.S.** Asst. Prof. in Rational and Applied Mechanics, and in testing laboratory, University of Wis-

consin, Madison, Wis. Res. 1633 Madison St. Memb. Am. Soc. Testing Materials, Eng. Soc. of Wisconsin, and Soc. for Prom. Eng. Educ. T.S. Author of bulletins and papers on tests of reinforced concrete beams and columns. (See *Eng. Record* for July, 1909, and July, 1910.)

**\*\*Nelson Ford McClary, B.S.** Died in Ecuador, So. America, Nov., 1905. (See Annual for 1906.)

*John Francis Doonan, B.S.* Since Oct., 1908, with N. Y., N. H. & H. R. R. Co., on surveys and estimates for grade crossing changes, line revision, etc. Res. Young's Hotel, New Milford, Conn. Perm. Greenville, N. H. T.S. (1912)

*John Hibbard Fellows, B.S.* Graduate in mechanical engineering, Mass. Inst. of Technology, B.S. degree, 1906. Lately Manager of the plant of the Stanley Works, Niles, Ohio; recently at the New Britain (Conn.) Works. Perm. Tilton, N. H.

*George Alexander Lewis.* Served on the engineering force of the Isthmian Canal Comm., August, 1904, to April, 1905. Perm. Hingham, Mass. Supt. Construction on the R. T. Crane Estate, Ipswich, Mass., since April, 1911. Res. 8 Fruit St. (1911)

*Wayne Arthur Perkins, B.S.* Asst. Engr., U. S. Recl. Service. Since March, 1911, in charge of design and construction of Two Medicine dam and structures for Dodson North Canal, Milk River project: address, Browning, Mont., or care U. S. R. S., Great Falls, Mont.

#### 1906

**James Seth Adams, B.S.** Before April, 1911, construction engineer for the Western Electric Co. Since then general contractor for building construction, 901 Plymouth Building, Chicago, Ill. Res. 112 South East Ave., Oak Park, Ill. (1911)

**Walter Abbott Conley, B.S.** Designer and estimator, bridge dept., Am. Bridge Co., New York office, 30 Church St., New York City. Res. 116 Essex Ave., Glen Ridge, N. J. Perm. 67 Spruce St., Portland, Me. T.S.

**Charles Francis Goodrich, B.S.** Designer and estimator, American Bridge Co., bridge dept., New York office, since June, 1910. Address: 915 Carteret Ave., Trenton, N. J., or 10 Larchmont St., Dorchester, Mass. T.S.

**Ralph Leonard Libby, B.S.** Engineer for Corrugated Bar Co., care Peden Iron and Steel Co., Houston, Texas. Perm. 235 Washington St., Dover, N. H.

**Hope Richard Messer, B.S.** Since May 1, 1910, Sanitary Engineer, Dept. of Health, Virginia; 1110 Capitol St., Richmond, Va. Perm. Claremont, N. H. Assoc. Memb. Am. Soc. C. E. Memb. Am. Water Works Assoc. and Am. Public Health Assoc.

**Harrie Langdon Muchemore, B.S.** Lately expert aid, Dept. Public Works, Puget Sound Navy Yard, Bremerton, Wash. Contributed article to *Eng. Record*, June 22, 1912, on "Piers Cast as Concrete Shells and Filled in Place," describing the work done by him. Since Nov., 1912, Engr. for W. W. Anderson & Co., contractors, 107 Grant Ave., San Francisco, Cal. On contract for machinery hall, Panama-Pacific Exposition. Res. 2644 Etna St., Berkeley. Junior Am. Soc. C. E. T.S.

**Harrison George Roby, B.S.** Asst. Engr. to Prof. D. W. Mead, Consulting Engr., 530 State St., Madison, Wis., and Nat. Bank Bldg., Chicago, Ill. Since Nov., 1912, Res. Engr. in charge of construction of 5400 h. p. hydro-elect. plant, on the Menominee River, for the Oliver Iron Mining Co. Address: 700 Carpenter Ave., Iron Mountain, Mich. Perm. Whitewater, Wis.

**William Thomas Shaw, B.S.** Asst. Engr., Boston Elev. R. R. until Aug., 1911. Res. Middleboro, Mass., R. F. D., No. 1. Not yet well enough to resume work. Assoc. Memb. Am. Soc. C. E., Memb. Boston Soc. C. E. T.S.

**Leon Burdett Smith, B.S.** Div. Engr., Bureau of Water, Dept. of Public Works, Pittsburg, Pa. Res. 5447 Stanton Ave. Perm.: Derry, N. H. Since Nov., 1912, in charge of design, construction and maintenance of pipe lines and reservoirs. T.S.

**Myron Ellis Witham, B.S.** Lately in charge of construction of the Standley Lake dam, which will have a total of five million cub. yds. Now Bull & Witham, Cons. Engrs., 1015 Foster Bldg., Denver, Col. Assoc. Memb. Am. Soc. C. E. Consult. Engr for several power companies, the Paradox Valley R. R., etc. (1912)

**Guy Eric Woodward, B.S.** County Supt. of Bridges. City Engr. of Redmond. In private practice. P. O. Box No. 260, Redmond, Ore. Has four steel bridges in construction and has charge of engineering and designing of Redmond water system. (1912)

*Chester Philbrook Smith, B.S.* Second-year course interrupted by ill-health. Draftsman in office of engineer of structures, N. Y. C. & H. R. R., New York City, since April 1, 1913. Res. 77 Buena Vista Ave., Yonkers, N. Y. Perm. Norridgewock, Me., Care Mrs. Cora A. Smith.

*Frank Nelson Tinker, B.S.* (Norwich Univ.) Student in residence, THAYER SCHOOL, second-year course incomplete. Address unknown.

*George Ralph Colson, B.S.* Asst. Engr. So. Shore Traction Co., Babylon, Long Id., N. Y. Perm. North Billerica, Mass. T.S. (1910) Present address reported: Care of Caribbean Construction Co., St. Marc, Haiti, W. I.

*Harold Morton Haskell, B.S.* Assistant to the City Engineer, Manchester. Address: 66 Appleton St., Manchester, N. H. (1912)

*Fletcher Ames Hatch, B.S.*, Engr. United Fruit Co., in charge irrigation system for 2500 hectares of new plantings. Address: Santa Marta, Colombia, South America. Perm. care Mrs. A. C. H. Stearns, 66 Glover Ave., Atlantic, Mass. T.S.

*Walter Earle Hawley, B.S.* Designer and estimator for Post & McCord, 44 East 23d St., New York City. Res. 1948 Sixty-first St., Brooklyn, N. Y. Perm. Norwich, Vt.

*Harold D. King, B.S.* Lately Assistant U. S. Coast and Geod. Survey, in charge of primary triangulation related to the 98th Meridian and on trancontinental precise levelling, and main scheme of triangulation, Philippine Ids.; also engaged on determination of gravity throughout the U. S. Transferred to Lighthouse Service, May, 1911; since April 15, 1912, Inspector 6th Lighthouse District, Charleston, S. C.

#### 1907

**Augustine Haines Ayers, B.S.** Principal Asst. Engr. for Southern Alberta Land Co., Ltd., Medicine Hat, Alberta, Canada, until May, 1913. Perm. No. 8 State St., Concord, N. H. Since May 5, Supt. of Construction, U. S. Reclamation Service, Northern Div., during the summer on the St. Mary project. Address: care of U. S. R. S., Great Falls, Mont. Assoc. Memb. Am. Soc. C. E.

**Charles Luther Bourne, B.S.** With the H. P. Converse Co., Boston, Nov., 1908, to Sept., 1912. By letter, Sept. 27, 1912, with

the Bates Mfg. Co. of Lewiston, Me., on construction of a large mill bldg. Perm. 126 Woodbine St., Auburndale, Mass.

**Neil Stanley Buckbee, B.S.** Since Mar. 1, 1913, Engr. for Braas Bros. Co., general contractors, Niagara Falls, N. Y. Res. 538 Fifth St., Niagara Falls, N. Y.

**Chester McKenzie Everett, B.S.** Draftsman and estimator, in the office of Hazen & Whipple, Consulting Engrs., 42d St. Bldg., New York City. Res. 159 West 131 St. Perm. Champlain, N. Y.

**William Henry Fox, B.S.** Since Sept., 1912, Asst. Engr for the city in charge of sewer design; reinf. concr. sewers up to ten ft. diam., etc. Care Chief Engr's Office, City Hall, Louisville, Ky. Perm. 80 Pearl St., Clinton, Mass.

**Vicente Molina, B.S.** In practice as surveyor and Civil Engr., Merida, Yucatan; Calle 63, No. 469. From Feb., 1909 to Jan., 1913, Chief Engr. United Rys. of Yucatan, system of 550 miles; reconstructed old lines; prepared plans for and constructed two new lines. Assoc. Memb. Am. Soc. C. E.

**Fred Foster Parker, B.S.** Lately Asst. Engr. and inspector to the Engr. and Supt. of Bldgs., Dartmouth College, and Asst. Supt. Parker & Young Co., Lisbon, N. H., and plant manager for Am. Felt Co.; since May 1, plant manager, Winslow Bros. and Smith Co., tanners, Norwood, Mass. Res. 56 Hoyle St.

**Clarence Irving Peckham, B.S.** (Brown Univ.) Asst. Engr. for Public Service Comm., New York City, in 1908 and 1909. Now Asst. Eng. for the N. Y. State Highway Comm. Perm. 30 Gurney St., East Providence, R. I.

**Verney Warren Russell, B.S.** U. S. Reclamation Service; since Sept., 1910, Asst. Eng. in charge of operation and maintenance of the Shoshone Dam and reservoir. Res. Cody, Wyoming. Perm. Norwich, Vt. Assoc. Memb. Am. Soc. C. E. T.S.

**Watson Burchard Smith, B.S.** Asst. Eng. Union Pac. Ry., Box 298, Sidney, Neb. Perm. 2211 St. Mary's Ave., Omaha, Neb.

**Carlton Manson Soule, B.S.** Estimator and designer in the office of Eng. of Bridges, B. & O. R. R., Baltimore, Md., 3215 Westwood Ave., Walbrook, Baltimore, Md. Perm. 70 Putnam St., E. Weymouth, Mass.

**\*\*Harry Allen McMore, B.S.** Lately with the General Fireproofing Co. Died Oct. 20, 1909. (See Annual for 1910.)

*Herbert Leslie Boynton, B.S.* With Chi. & N. W. Ry., rodman, topographer, and instrumentman; since Oct., 1908, on construction of new terminal, Chicago. Res. 608 Church St., Evanston, Ill.; perm. 16 Sixth Ave., Haverhill, Mass. Junior Memb. Western Soc. C. E. (1910)

*Joseph Theodore Chase, B.S.* Mgr. Roanoke Rapids Power Co., Box H, Roanoke Rapids, N. C.; perm. 151 Beech St., Holyoke, Mass.

*Henry George Porter, B. S.* With Hazen and Whipple, 42d St. Bdg., New York City. Since May 1, 1912, Res. Engr. construction of additional filters at Yonkers, N. Y. Res. 87 Warburton Ave., Yonkers, N. Y. Home, Lisbon, N. H. Assoc. Memb. Am. Soc. C. E. T.S.

*Raymond Collins Wood, B.S.* Draftsman, Murphy Varnish Co., Newark, N. J. Res. 22½ Chestnut St. Home address: 11 Summit Ave., Haverhill, Mass.

#### 1908

**Samuel Colcord Bartlett, B.A.** Lately rodman, draftsman, and instrumentman, Grand Trunk Pacific R. R., and other rys. in Brit. Col. and Wash. Also as officer on U. S. C. & Geod. Survey Str. Yukon in Cook's Inlet, Alaska. Perm. Hanöver, N. H. T.S. Since March, 1911, Supt. of construction for Hastings Pavement Co., 25 Broad St., New York City.

**Ray Wilbur Brown, B.S.** Lately transitman for Arthur T. Safford, Civ. Eng. on protection of water supply at Fall River, Mass., and now assistant in the Eng'g Dept. of the City. Res. 268 Locust St.

**Nathaniel Francis Davis, B.S.** Assistant Manager for the Davis Paper Co., Contoocook, N. H. Res. Contoocook. (1911)

**John H. Dunlap, B.A.** Assistant Prof. of Hydraulics and Sanitary Engineering, State Univ. of Iowa, Iowa City, Iowa, since Sept., 1911. Res. 311 Brown St., Iowa City; perm. Bennington, N. H. T.S. Iowa Engr. Soc. and Ill. Water Supply Assn.

**Arthur John Ela, B.S.** Asst. U. S. Coast and Geod. Survey, until 1910. Home address: 96 Stafford St., Worcester, Mass. T.S. Lately in employ of Stone & Webster, Civ. Engrs. and Contractors, Seattle, Wash. Asst. Superintendent, U. S. Lighthouse

Service, with headquarters at Ketchikan, Alaska (extreme south-eastern part). (1912)

**Samuel Francis Garvin, B.S.** Oct., 1912, to Apr., 1913, with Knickerbocker Portland Cement Co. Now Asst. Engr. Asbestos — Asbestic Co., Asbestos, Que. Perm. Sanbornville, N. H.

**Harry Matt Gray, B.S.** With Hazen & Whipple, Cons. Engrs., 42d St. Bldg., New York City. Oct., 1912, to Apr., 1913, res. engr. on construction of Poughkeepsie filtration plant. Now in the New York office. Assoc. Memb. Am. Soc. C. E.

**Fred Bacon Greenleaf, B.S.** Member of firm J. A. Greenleaf & Sons Co., Inc., Contractors and Builders, Auburn, Me. Since May 1, Div. Supt. for the H. P. Cummings Co., Hudson Falls, N. Y. Res. Hotel Cunningham. After completing new plant of International Paper Co. at Wilder, Vt., in Feb., started for Panama. Visited Galveston, Houston, and San Antonio, Texas, and New Orleans; but was called back to New York.

**Reuben Hayes, B.S.** Lately with Post & McCord, New York City. Perm. Dover, N. H., R. F. D. Madbury, N. H. Since March, 1911, Asst. Engr., office of Ch. Eng. M. W., Sou. Ry. Co., 1300 Pennsylvania Ave., Washington, D. C. T.S.

**Roy Mullins, B.S.** Res. Eng., Chi. & Erie Ry., Feb., 1912, to Mar., 1913. Since Apr. 3rd, Right of Way Engineer, Dept. of Public Roads, State of N. J. Permanently appointed in June after Civil Service Exam., in which he had the highest mark, 87.4 per cent. Res. 303 East 6th St., Plainfield, N. J. Perm. Baldwinsville, Mass.

**Harold Parker, B.S.** Supt. of construction of hospital for United Fruit Co. in Guatemala since April 15, 1912. Care United Fruit Co., Puerto Barrios, Guatemala. Perm. 58 Middle St., Portsmouth, N. H. Memb. Nat. Assoc. Cement Users.

**Russell Hastings Peck, B.S.** Since Oct., 1910, Engr. of Palmer Land & Water Co., Palmerton, Pa. Perm. Mt. Vernon, N. H. T.S. Contributed to *Engineering News*, of Mar. 20, p. 574, a "Fractional Wage" diagram.

**Henry Tyler Pierce.** Asst. Engr. Puerto Rico Irrigation Service, since Oct., 1910, Juana Diaz, P. R.; res. engr. on the Coamo dam. (1911)

**Frederick William Welch, B.S.** Private practice, Spirit Lake, Idaho; perm. East Lempster, N. H. Instructor in THAYER SCHOOL OF CIVIL ENG., July, 1908, to Sept., 1909, and in State University of Iowa, 1909-1910. T.S. (1912)

*Herbert Davis Hinman, B.S.* Under the Panama Canal Comm., since July, 1907. Lately Supt. of construction Pedro Miguel locks; since Aug., 1912, engr. in charge of construction of the Pacific Terminals. Corozal, C. Z., Panama. Perm. Groveton, N. H. Assoc. Memb. Am. Soc. C. E.

*William Rice Kimball, B.S.* Since Feb. 1, 1908, with Jos. T. Ryerson & Son, eng. dept., Chicago, Ill. Res. 623 No. Grove Ave., Oak Park Ill. T.S. Supt. in charge of installation of riveted steel pipe lines in Mexico, Utah, and Tennessee.

*Merton Clark Knapp, B.S.* Asst. Eng. U. S. Recl. Service, Sun River project, Fort Shaw, Montana. Perm. 23 N. Lincoln St., Keene, N. H.

*Nathaniel Hobbs Knight, B.S.* Member of the firm, Knight & Merrill, The Ontio, Ogonquit, Me., or North Berwick, Me. 1911-13 Asst. and Instructor in Physics, Tufts College. Home address: 60 Pearson Rd., W. Somerville, Mass.

*Clarence Erwin Langley, B.S.* From Sept., 1907, under Isthmian Canal Comm., and, since May 1, 1912, supervisor of construction in charge of masonry and excavation, Gatun Locks. Address: Gatun, Canal Zone, Panama. Assoc. Memb. Am. Soc. C. E.

*Charles Reed Main, B.S.* Graduate, 1909, in mech. eng., Mass. Inst. of Technology. With Chas. T. Main, Mill Engr., 201 Devonshire St., Boston, Mass. Business Manager of Western Office, Great Falls, Mont. P. O. Box 1004. Memb. Boston Soc. C. E.

*William Maddock Silleck.* With George H. Fuller Co., Bldg. Construction, 111 Broadway, New York City. Manager of the office at Spartanburg, S. C. Perm. Smiling Valley Farm, Wilton, Conn. T.S.

*\*\*Robert Houghton Pearson, B.S.* Lately under the Isth. Canal Comm., as general foreman of concrete placing on the Gatun Locks, Gatun, C. Z. Died Jan. 4, 1911. (See Annual for 1911.)



## 1909

**George Fredson Baine, B.S.** Lately in Chief Engrs. office, Mo. Pac. Ry., and Asst. Engr. on No. Kans. Division. Married, Sept., 1912, and left, via England, for Buenos Aires, as Engr. for Jacobs & Davis of London, Eng. Address: Oficina del Subteraneo, F. C. O., Calle B Mitre 2961, Buenos Aires, So. America. Engaged on railroad tunnel work. Perm. Berlin, Mass. T.S.

**Arthur Bradley Barnes, B.A.** Master Mechanic, Barnaby Mfg. Co., Fall River, Mass. Memb. Boston Soc. of Civ. Engrs. (1912). T.S.

**Richard Stevens Danforth, B.S.** Heavy contract work with L. F. Gerdetz, Portland, Oregon, until Jan. 1, 1913. Since then Sec. and Manager of Hood Electric Co., Hood River, Ore. Perm. 29 Pleasant St., Gardiner, Me.

**Ralph Gardner Knight, B.S.** Instructor in civil engineering, Pennsylvania State College, since Oct., 1909. State College, Pa.; perm. Randolph, Mass. Engineering work about the college and grounds, structures and improvements. (1911)

**Ernest Avery Lincoln, B.S.** Left the U. S. Geol. Survey in May, 1910. Since with San Diego Consolidated Gas & Elect. Co., on construction of power plant and underground conduit, under H. M. Byllesby & Co., Engrs., Chicago. Res. 1652 First St., San Diego, Cal. Perm. 457 June St., Fall River, Mass. T.S.

**Raymond Robb Marsden, B.S.** Instructor in THAYER SCHOOL OF CIVIL ENGINEERING, year 1909-10. With H. S. Ferguson (T. S. C. E., 1891), Civil and Hydraulic Engr., 200 Fifth Ave., New York City. Perm. 26 Dudley Ave., Utica, N. Y. T.S. June, 1912, Res. Engr. on construction of new pulp mill, Fitzdale, Vt.

**Frederick Herman Munkelt, B.S.** Asst. Eng. Am. Bridge Co., 30 Church St., New York City. Perm. 668 E. 13th St., Brooklyn, N. Y. Jun. Am. Soc. C. E. T.S.

**Earl Thomas Richards, B.S.** With the Benj. F. Smith Construction Co., mill contractors, as Supt. of construction, including reinforced concrete; 22 Mason St., Pawtucket, R. I. T.S. (1912)

**Charles Potter Richardson, B. S.** Since Aug. 1911, Asst. Engr. on work of track elevation, Rock Island R. R. lines in Chicago, Ill. Expected to require eight years. Address: 6546 Stewart Ave., Chicago, or 57 Silver St., Dover, N. H. T.S.

**Harold Ordway Rugg, B.S.** Lately instructor in civil engineering, James Millikin Univ. Instructor, general engineering drawing, Univ. of Illinois, Engineering bldg., Urbana, Ill. Perm. 142 Day St., Fitchburg, Mass. Memb. Soc. Prom. Eng. Educ., and Ill. Soc. Eng. and Surveyors. (1912)

**Sidney Lee Ruggles, B.A.** Junior Topographer U. S. Geol. Surv., 1909. Instructor in Surveying Pennsylvania State College, 1909-10. Instructor in Surveying and Graphics, THAYER SCHOOL OF CIV. ENG., Sept., 1910, to date. Res. 6 Sargent St., Hanover, N. H. T. S.

**Park Washburn Stickney, B.S.** Asst. Engr., North. Pac. Ry. Since Dec., 1911, Res. Engr. on construction of terminal yards, etc., Carlton, Minn. Res. 901 1st St., No. Fargo, N. D. T.S.

**James Hammond Stone, B.S.** Formerly in charge of various construction in Cuba and Santo Domingo. Res. Engr. in charge of construction waterworks plant,—reservoir and electric pumping station, Madisonville, Ky. Res. 210 Union St. Perm. R. F. D. 2, Concord, N. H. Assoc. Memb. Am. Soc. C. E. Memb. Mass. Highway Ass'n. T.S.

**Philip Laforrest Thompson, B.S.** Supt. in charge of construction, etc., Hastings Pavement Co., 25 Broad St., New York City. Res. 126 Saratoga Ave., Yonkers, N. Y. Perm. St. Johnsbury, Vt. T.S.

**Frederick Sampson Weston, B.S.** During three intermediate years Asst. Engr. for J. G. White & Co., of New York, on construction of Philippine railroads and bridges, on Negros and Cebu. Mar., 1912, to Jan., 1913, Terminal Engr. Madeira-Mamore Ry., Porto Velho de Santo Antonio, Brazil. Later with Metcalfe and Eddy of Boston. Since June 1, Res. Engr. Jacksonville Terminal Co., Jacksonville, Fla. Perm. Middleboro, Mass. Assoc. Memb. Am. Soc. C. E. T.S.

**Willard Choate Winkley, B.S.** Draftsman, Lockwood, Green & Co., Architectural Engrs., 93 Federal St., Boston, Mass. Since July 1, 1912, in charge of reinforced concrete department at the Chicago office. Address: First National Bank Bldg., Chicago, Ill., care Lockwood, Green & Co. Perm. 7 W. Concord St., Dover, N. H. T. S. (1912)

**\*\*Richard Hazen, B.A.** Lately with Hazen & Whipple, Consulting Civil Engrs., 42d St. Bldg., New York City. Died Aug. 13, 1911. (See Annual for 1911.)

*Frederick Kent English, B.S.* Home address: 51 Main St., Wareham, Mass. Since June 1, 1912, chief of plane table party for Directors of the port of Boston, on railroad location. Res. 290 Columbus Ave., Boston, Mass. (1912)

*Ralph William Hazen, B.S.* Junior Engr. U. S. Rec. Ser., Browning, Mont. Formerly Asst. Engr. in the Philippine Service, Manila. Perm. Whitefield, N. H. T.S. Jun. A. S. C. E. (1912)

*Roger Frank Hill, B.S.* Graduated from Mass. Inst. Tech., 1910. Eng. for the A. J. Smith Construction Co. of Detroit, Mich.; 18 Campan Bldg. Memb. Mech. Eng. Soc. M. I. T. Perm. Tilton, N. H. (1912)

*Charles Arthur Luck.* General Manager of the Asphalt Block Pavement Co., 840 Ohio Bldg., Toledo, Ohio. Res. 416 Macken St. Memb. Toledo Society of Engrs. and Ohio Engineering Soc., and T.S.

*Harold Arthur Morey, B.S.* With the International Paper Co., Glens Falls, N. Y. Res. So. Glens Falls.

*Walter Clarence Rich, B.S.* Formerly Asst. Engr. in charge of construction of highways. State of New York. Since Sept., 1912, Supt. for Servis & Mackey, Youngstown, N. Y., on highway construction. Address: Youngstown, N. Y.

*Carl Wilbur Ross, B.A.* Chief draftsman, Engr's. office, Water Dept., City Hall, Portland, Oregon.

*Alva Bruce Rutherford, B.S.* Supt. for the Asphalt Block Pavement Co., Toledo, Ohio, 845 Ohio Bldg. Perm. Waddington, N. Y. T.S. Construction of pavements throughout Ohio. (1912)

*Frederick Edw. Schilling, B.S.* Supt. of construction for Turner Construction Co., 312 Prudential Bldg., Buffalo, N. Y. By report of 1912 in charge of bldgs. in Utica, Little Falls, and Niagara Falls, N. Y. Perm. 68 Glen St., New Britain, Conn. T.S.

## 1910

**Benjamin Ayer, B.S.** Supt. of the Monatiquot Rubber Works Co., 15 Holbrook Ave., So. Braintree, Mass. Perm. 135 School St., Belmont, Mass. T.S. (1912)

**Delmont Rockwood Bradley, B.S.** With Geo. F. Hardy, Mill Engr. and Architect, 309 Broadway, New York City. Perm. 163 Washington St., Gloucester, Mass. T.S.

**Arthur Leet Buxton, B.S.** June, 1911, to Apr., 1912, Engr. for Westinghouse, Church, Kerr & Co., New York City. Engr. for Thompson-Starrett Co., on store bldg., Newcastle, Pa. Address: 2nd Nat'l Bank Bldg., Pittsburg, Pa. Perm. 108 Dartmouth St., Springfield, Mass. Res. 518 E. Fourth St., Cincinnati, O. T.S.

**Frank Gordon Cook, B.S.** Asst. Engr. in charge of Dakota Div. 700 miles of main track and branch lines. Address: Eng. Dept., N. P. Ry., Jamestown, No. Dak. Perm. 110 State St., Concord, N. H. T.S.

**Oliver W. Cushman, B.S.** Asst. to Engr., Westinghouse, Church, Kerr & Co., 37 Wall St., New York City. Res. 311 Adelphi St., Brooklyn; perm. 495 Manchester St., Manchester, N. H. (1911)

**Benjamin Harmon Dudley, B.S.** Since Oct., 1912, with N. Y. C. & H. R. R. R. Co., as instrumentman and now as draftsman at Albany, N. Y., district engr's. office. Perm. 76 Park St., Malone N. Y. T.S.

**Robert Rutledge Gould, B.S.** Lately checker, Am. Bridge Co., of New York; Since May 1, Asst. Engr. on 3d tracking, -etc., Brooklyn Rapid Transit lines. Res. 626 Union Ave., Bronx, New York City. T.S.

**Winthrop Lamson Smith, B.S.** With the Maint. of Way Dept. N. Y. C. & H. R. R. R. Co., 145 Washington St., Buffalo, N. Y. Perm. 750A Brooklyn Ave., Brooklyn, N. Y.

**Harry Abbott Ward, B.S.** Asst. Engr. in office of Turner Construction Co., of New York; 312 Prudential Bldg., Buffalo, N. Y.; address, 150 Hodge Ave., Buffalo, N. Y. Perm. 25 Arlington St., Lynn, Mass.

*Albert James Wheeldon, B.S.* Diploma withheld until completion of work in hydraulics. In employ of U. S. Steel Corporation, Worcester plant. No report since 1910.

*Frank Stearns Austin, B.S.* Asst. Supervisor of track Bost. & Albany R. R., Granite Bldg., Springfield, Mass.; perm, 38 Sanderson Ave., Lynn, Mass. (1912).

*John Cleveland Beebe, B.S.* C. E. from Univ. of Wisconsin, graduate in hydraulics, June, 1910. Oct., 1911, to July 1, 1912, in charge of stream gauging, Dist. No. 1, U. S. Forest Service. Now in charge of an irrigation project, Smith's Camp, Saskatchewan, Can. Perm. care S. D. Beebe, Hampden, Mass. Jun. Am. Soc. C. E. Memb. Mont. Soc. Engrs.

*Ralph Byron Clement, B.S.* Asst. Engr., Central N. H. Power Co., 39 No. Main St., Concord, N. H. Investigation of Smith River Valley, and investigation and design of Croyden development. Perm. 12 George St., Chelsea, Mass.

*Fred Ernest Hanson, B.A.* Lately with Real Estate Dept., N. Y., N. H. & H. R. R. Co., Providence, R. I. Perm. Springvale, Me.

*John Edw. Hansbury, B.S.* No report since May, 1909, when he was track apprentice on the Mo. Pac. Ry.

*Arthur Lowell Herrick, B.S.* Graduate in Hydraulics from Univ. of Wisconsin, with degree of C.E., in June, 1910. In charge of the hydraulic work under the Mech. Engr. Dept., at Columbia University, New York City. Perm. 10 Forest St., Gloucester, Mass. (1912).

*Hazen Kimball Hibbard, B.S.* Since Oct. 1, 1909, instrument-man on the Atch., Top. & St. Fe R. R., care Div. Eng., Chanute, Kas. Res. 902 East 3d St., Cherryvale, Kas. (1910)

*Fred Gray Leary (B.A. Colgate Univ.), B.S.* Since April, 1910, in the Water Dept., City Hall, Portland, Ore. In charge of 14 miles of water-main construction from Mt. Hood to the city. Res. 589 East Madison St. Perm. Hamilton, N. Y. (1911)

*Dwight Thornton Reed, 2 Lovell St., Portsmouth, N. H.* Reports from 402 Rondo St., St. Paul, Minn. (1912).

*Harold Cushing Whitmore, B.S.* April, 1912, to July, 1912, chief of party on the Farnham dam, New Lenox, Mass.; since then Asst. Engr., Somerset Dam, Power Construction Co., Mountain Mills, Vt. Res. 91 Baker St., Lynn, Mass. Jun. Am. Soc. C. E.

## 1911

**John Anthony Cassidy, B.S.** Since Jan., 1912, with the Singer Mfg. Co., Elizabethport, N. J. Res. 931 Gates Ave., Brooklyn, N. Y. T.S. (1912).

**John Warren Childs, A.B.** Jun. Engr., U. S. Reclamation Service, Sun River Project, Fort Shaw, Mont., his present address. Perm. Henniker, N. H.

**Harry Burns Dore, B.S.** Surveyman, U. S. Reclamation Service, Sun River project, Mont., until Jan. 1912. During 1912 with Harbor Comm. of San Francisco. Now with N. E. Structural Co., East Everett, Mass. Res. 78 Mt. Vernon St., E. Somerville. Perm. 53 Richards Ave., Portsmouth, N. H.

**Peter Staub Dow.** Assistant to Professor Hazen in the dept. of engineering and graphics, Dartmouth College, Hanover, N. H. Perm. 416 Second St., Knoxville, Tenn.

**Whitney Haskins Eastman, B.S.** Asst. Supt. of Linseed Oil Mfg. plant for the Midland Linseed Products Co., Edgewater, N. J. Res. 387 Undercliff Ave., Edgewater, N. J. T.S.

**Fred Sumner Hanson, Jr., B.S.** In 1911-1912 Field Asst. for Bureau of Engineering Statistics under Prof. Geo. F. Swain. Perm. 93 Myrtle St., Somerville, Mass. During 1911-1912 on the boundary survey, Panama-Costa-Rica.

**Henry Roger Harrison, B.S.** (1912) In charge of Denver office of the Whitney Co., of New York; Denver, Colo. Res. 1457 Vine St.

**Edward Wyman Higbee, B.S.** Reported to be with American Tel. & Tel. Co., Engr. Dept., New York. Perm. 4 Rhode Island Ave., Newport, R. I. T.S. (1912).

**John Warren Ingalls, B.S.** Transitman, Maine Central R. R., since April. Care Eng. Dept., Portland, Me. Jan. to Apr., track supervisor, Ponce & Guayama R. R., Porto Rico. Perm. 76 Baker St., Lynn, Mass. Jun. Am. Soc. C. E.; T.S.

**Edson Warren Keith, B.S.** Since Oct. 14, 1912, Instrumentman for City Engr., Manchester, N. H. Address: 160 Concord St., Manchester, N. H. Res. West Wareham, Mass. (1912).

**Walter Harrison Kraft.** With the Public Service Comm. on 4th Ave. Subway as Junior Engr., 107 Lefferts Place, Brooklyn, N. Y. Res. 1070 Bergen St. (1911)

**Ralph Wilbur Noyes, B.S.** With the Stone & Webster En'g Corporation as inspector, etc., on the plant of the Mississippi River Power Co., Keokuk, Iowa, inspecting and doing office work. Perm. Whitefield, N. H., care of Dr. R. E. Wilder. T.S.

**Robert Emerson Parker, B.S.** Junior engr. with the Aberthaw Construction Co., 8 Beacon St., Boston, Mass. Perm. 55 Walnut St., Reading, Mass. T.S. Memb. Bost Soc. of C.E. (1912).

**Earle Howard Pierce, B.S.** After slow recovery from an operation, since Mar 15th, plant manager, Hawthorne Mill, Am. Felt Co., Hyde Park, Mass. Home, 575 Watertown St., Newtonville, Mass.

**James Marsh Porter, B.S.** In 1912 Gen. Man. for Northwestern Metals Co., Helena, Mont. Perm. 149 Hawthorne St., Malden, Mass. No report this year.

**Maurice Readey, B.S.** Since June 24, 1912, Estimating,—Simmons Pipe Bending Works, 40 Mechanic St., Newark, N. J. Perm. 2288 Elm St., Manchester, N. H.

**Fletcher Rogers, B.S.** Supt. of Construction for the Hastings Pavement Co., 25 Broad St., New York City; executing contracts in vicinity of New York and in Michigan. Perm. Cresskill, N. J. T.S.

**Ralph Arthur Sherwin, B.S.** With the Aberthaw Construction Co., at home office, 8 Beacon St., Boston, Mass. Perm. 16 Summit St., Orange, Mass. T.S.

**Edgar Mills Steward, B.S.** Supt. of Construction for the Asphalt Block Pavement Co., 842 Ohio Bldg., Toledo, Ohio. Perm. 517 East 60th St., Chicago, Ill.

**Harry Artemas Wells, B.S.** Lately with Geo. F. Hardy, (Dart. Coll., C. S. D., '88), Hydraulic and Mill Engr., New York City. Since Dec. 1, 1912, Supt of Bldgs. and Engr. for Dartmouth College, supervising a plant of forty-five bldgs. Perm. 13 Redington St., Littleton, N. H. T.S.

**Abiel Wayland Wood, B.S.** Lately with Hazen & Whipple, Consulting Engrs., New York City. Since Mar., 1913, with Robt. Spurr, Weston, Cons'g. Sanitary Engr., 14 Beacon St., Boston, Mass. Perm. 9 Shattuck St., Worcester, Mass.

*Geo. E. Chamberlin, B.S.* Failed to qualify for graduation at close of second year. Reported to be with the Stone & Webster Corporation, 11 Hancock St., Boston, Mass. (1911).

*Joseph Matthews Smyth.* Failed to qualify for graduation at close of second year. About a year with the U. S. Reclamation Service in Montana. With Puget Sound Bridge & Dredging Co., of Seattle, Wash., at Garden River Camps, Vancouver Id., B. C., care V. Q. P. Co., Camp 5, Victoria, B. C.

*James Joseph Kerley, B.S.* Lately with Blackwell & Buck, Cons. Engrs., 49 Wall St., New York City. In Sept. on construction, water power plant, North Ontario Light & Power Co., Ltd., Fountain Hall, (via. Cobalt) Ontario. Perm. 71 High St., Ballston Spa., N. Y.

*Joseph Ritchie Kinney, B.S.* Supt. of Construction for the Harlem Contracting Co., 2 Rector St., New York City; asphalt, block pavements. Perm. 187 Lincoln St., Winthrop, Mass. Joined the class of 1914. T.S.C.E.

*Guy Maxwell Perry, B.S.* Assistant and Supt. on Construction Work for the Elliot C. Brown Co., of New York City, 70 East 45th St., Grand Central Terminal Bldg. Address: Oyster Bay, L. I., care Elliot C. Brown Co.

*Harold Wesley Robinson, B.S.* Instructor in the Mid-Pacific or Mills Institute, Honolulu, T. H. After Sept. 24th, 1913, student Union Theol. Seminary, Broadway & 120th St., New York City. Perm. R. F. D. 2, Warren, Vt.

*Lewis Hamilton Sisson, B.S.* The year 1910-11 as senior in Dartmouth College. With the Racquette River Paper Co.—duties in connection with the Sulphite plant, large up-to-date mills. Res. 53 Elm St., Potsdam, N. Y. (1912).

*Perley Nelson Storer, B.S.* Asst. Engr. on the N. Y., Westchester & Boston R. R., on construction. Res. 149 South 5th Ave., Mt. Vernon, N. Y. Perm. 148 State St., Portsmouth, N. H. (1911)

## 1912

**Sydney Clifford Beane, B.S.** With Aberthaw Construction Co., 8 Beacon St., Boston, Mass; Engr. of construction of 12-story warehouse in Phila., Pa. Res. 22nd and Arch Sts. Perm. 19 Pelham St., Methuen, Mass. T.S.



**John Jackson Boynton, B.S.** Foreman for the Harlem Contracting Co., 2 Rector St., New York City. Res. 961 St. Nicholas Ave. T.S.

**Clarence Eugene Ellsworth, B.S.** During three intermediate years and now, Asst. Engr. in the Water Resources Dept. of the U. S. Geol. Survey in Alaska. Address the office, Washington, D. C. Home: Wentworth, N. H. Joint author of reports on mineral resources and stream flow of the Yukon-Tanana region, 1908 to 1910. Formerly of the class of 1908.

**Harold Lewis English, B.S.** Draftsman and designer Concrete Dept., Del., Lack. & W. R. R., Hoboken, N. J. Res. 130 West 82d St., New York City. Perm. Lisbon, N. H. Jun. Am. Socy., C.E.

**Willard Merrill Gooding, B.S.** Lately with R. S. Weston, Consulting Sanitary Engr., 14 Beacon St., Boston, Mass. Since May 1 Engr. for Berlin Water Co., Berlin N. H. Perm. 106 Spruce St., Portland, Me. Memb. New Eng. Water Works Assoc.

**Julian Osgood Goodrich, B.S.** With the firm Walker, Walker & Goodrich, Surveyors and Civil Engrs., 44 State St., Montpelier, and Barre and White River Junc., Vt. Perm. So. Royalton, Vt. Memb. Vt. Soc. Engrs.

**William Davis Gordon, B.S.** Construction foreman for H. L. Stevens & Co., of Chicago, Ill., on seven-story, reinforced concrete hotel in Sioux City, Iowa. Res. 2719 Jackson St. (1912).

**Alfred Albert Hormel, B.S.** With George F. Hardy, Mill and Hydraulic Engr., 309 Broadway, New York City. Since June 1 in charge of construction Pulp Mill for Chesapeake Pulp & Paper Co., Box 60, West Point, Va. Sent the school many progress photos. of construction of the new plant of the St. Croix Paper Co., in Maine, which he supervised until April. Res. 41 M St., South Boston, Mass. T.S.

**Warren Fuller Kimball, B.S.** Until July surveyor and, since, inspector for Assoc. Factory Mutual Fire Ins. Cos., 810 Denckla Bldg., Phila., Pa. Perm. 30 Lee St., Cambridge, Mass. T.S.

**Clyde Earle Locke, B.S.** Asst. in Buffalo office of the Turner Construction Co., of 11 Broadway, New York City. 312 Prudential Bldg., Buffalo, N. Y. Perm. Orleans, Vt. T.S.

**Leon Craig Marshall, B.S.** U. S. Forest Service, Washington, D. C. Since Mar. 1, 1913, on the Savannah, Georgia, Area. Perm. Hanover, N. H.

**Harold Warren Pease, B.A.** Lately with the Hastings Pavement Co., New York City, and with Geo. F. Hardy, Hydraulic Engr., of New York, on survey of the St. Maurice River above Grand Mére, P. Q., until May. Perm. 297 Grove St., Fall River, Mass.

**Frank Sumner Whitcomb, B.A.** Draftsman, American Bridge Co., Pencoyd Plant, 132 Sumac St., Wissahickon, Phila., Pa. Perm. 2 Belmont St., Lowell, Mass. T.S.

**Riley Tilton Young, B.A.** With H. S. Ferguson, Mill and Hydraulic Engr., 200 Fifth Ave., New York City. Asst. Engr. on construction of a pulp mill at Fitzdale, Vt. Perm. Littleton, N. H. T.S.

*Harold Andrew Campbell, B.S.* Service under the Isthmian Canal Commission until July, 1912. In office of Grand Trunk R. R. at St. Albans, Vt. Expects to go into mechanical engineering. (1912).

*Kenneth Johnston Knapp, B.S.* Asst. in City Engr.'s office, Rochester, N. Y. Res. 40 Rowley St.

*Edward Smith Poole, B.S.* Cashier branch office Travelers Insurance Co., 601 Dime Bank Bldg., Detroit, Mich.

*\*\*John Wells Noyes, B.S.* Killed on the works of the Mississippi River Power Co., at Keokuk, Iowa, Sept., 1911. See *Necrology*, Annual of 1912.

### 1913

**Harold Tower Baker, B.S.** Since May 11, Asst. Engr. in the engineering dept. of the Great Northern Paper Co., Box 193, Millinocket, Me. Perm. 348 Center St., Dorchester, Mass. T.S.

**Ralph Edmund Baker, B.S.** Inspector and tester for Hollis French and Allen Hubbard, Consulting Engrs., 88 Pearl St., Boston, Mass. Res. 279 Ash St., Manchester, N. H. Perm. as above. T.S.

**Luther Nelson Doe, B.S.** Material clerk for the Turner Construction Co., on bldg. for the Gen. Elec. Co., Pittsfield, Mass. Res. 38 Dalton Ave. Perm. Bradford, Vt. T.S.

**George Hobart Farrington, B.S.** Draftsman for Republic Iron and Steel Co., Republic, Fayette Co., Pa. Perm. Kingston, Mass. T.S.

**George Hitchcock, B.S.**, Draftsman, American Bridge Co., Elmira Office. Res. 311 West Gray St. Perm. 11 Hollis St., Newton, Mass. Memb. Empire Technical Club. T.S.

**Samuel Hobbs, B.S.** Res. Engr. on construction of State Highways, Holliston and Grafton, Mass. P. O. Box 265, Grafton. Perm. Pelham, N. H. T.S.

**Edmund Irving Mitchell, B.S.** With the Am. Tel. & Tel. Co., Engr. Dept., 15 Dey St., New York City. Perm. 770 Putnam Ave., Brooklyn, N. Y. T.S.

**Lew Knowlton Perley, B.S.** Time keeper and material clerk for the Aberthaw Const. Co., on a large bldg. at Gloucester, Mass. T.S.

**Mark George Snow, B.S.** Asst to C. P. Richardson (T. Sch., 1909) Engr. on track elevation of the Rock Island R. R. lines in Chicago. Res. 6546 Stewart Ave. Perm. 2 High St., Middleboro, Mass.

**Samuel S. Stevens, B.S.** With the Aberthaw Const. Co., May to July. Since then with Westinghouse, Church, Kerr & Co., 37 Wall St., New York City. Res. 94 Hicks St., Brooklyn, N. Y. T.S.

**Ried Herrick Stone, B.S.** Topographical surveys for West Virginia Pulp & Paper Co., May to July. Since then in charge of construction of sewer and sewage tanks for Geo. C. Stoddard, Cons. Engr. of New York City, at Mt. Kisco, N. Y. Perm. R. F. D. 2, Concord, N. H. T.S.

**Lewis Clement Waterbury, B.S.** Asst. to Superintendent of Ponce & Guayama Railroad, Central Aguirre, Puerto Rico. Perm. Oriskany, N. Y. T.S.

**Ralph Edward Whitney, B.S.** With Robert S. Weston, Cons. Engr., 14 Beacon St., Boston, Mass. Perm. 154 Washington St., Keene, N. H. T.S.

*Ewart Gladstone Horne.* Since Sept. 1912, engr. with J. S. Metcalf Co., Ltd., Montreal, P. Q., on C. P. Ry. grain elevator at St. John, N. B.; Box 62, Fairville, N. B.

*Joseph William Lewis, B.S.* 64 Verona St., Lynn, Mass. (1912). No report for the past year.

*Roy Everett Lewis, B.S.* Asst. to Harold Parker, (T. S. C. E., '08) on construction of a large hospital and other reinforced concrete bldgs. for the United Fruit Co., in Puerto Barrios, Guatemala. Perm. Lebanon, N. H. May join class of 1914.

*Claude Moulton Goodrich, B.S.* Draftsman and designer, E. & T. Fairbanks Co., manuf'rs of scales, St. Johnsbury, Vt. Res. 10 Harrison Ave.

## STUDENTS OF THE YEAR 1913-1914.

### CLASS OF 1914—POST GRADUATE YEAR.

(Prospective class to resume classwork Sept. 17.)

- Abbot, Henry Dehon, B.S. *Cambridge, Mass.*  
Automobile trip to California and miscellaneous construction in concrete during the summer.
- Barends, Arthur Howard, B.S. *405 Delaware Ave., Albany, N. Y.*  
With Hastings Pavement Co., of New York City during the summer intermission of 20 weeks.
- Brewster, John Densmore, B.S. *Windsor, Vt.*  
During intermediate year, rodman, etc., on surveys for Grand Trunk R. R. in N. H. and Mass. During the winter with the Boston, Revere Beach and Lynn R. R. Co.
- Brown, Harry Madara, B.S. *Mt. Kisco, N. Y.*  
During intermediate year on hydro-electric development, St. Croix Paper Co., Me., and draftsman with Post & McCord, New York City. Field Asst., Thayer School, Civ. Eng., July, Aug. and Sept.
- Dolan, Joseph Michael, B.S. *29 East 130th St., New York City*  
During summer intermission with Hastings Pavement Co., of New York City.
- McDonald, John Stephen, B.S. *33 Carruth St., Dorchester Ctr., Mass.*  
With the P. McGovern Co., contractors on a four mile section of the New York State Barge Canal, Mechanicville, N. Y., during the summer recess.
- Osborne, Herbert Carroll, B.S. *Gurnsey Bldg., Keene, N. H.*  
Field Asst., Thayer School Civ. Engr., July, Aug. and Sept.
- Spencer, Frank Foss, B.S. *Berwick, Me.*  
Asst. to Supt. of Bldgs. and Engr. of Dartmouth College, oversight of new construction, from Apr. 28 to Sept. 19.

- Stiles, Edwin Milo, B.S. *Alton, N. H.*  
With the Hastings Pavement Co., 25 Broad St., New York City,  
April to Sept. 15.
- Wilbur, Conrad Church, B.S. *2603 Colfax Ave., S. Minneapolis, Minn.*  
Asst. in the engineering department North. Pac. Ry., Duluth,  
Minn., during the recess.
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## INTERMEDIATE YEAR—NON RESIDENT GROUP.

(Subject to change before the make-up of class of 1914 is  
determined.)

- Cole, Henry Waldo *Beecher Falls, Vt.*  
Since May 1, with the U. S. Reclamation Service at Poplar,  
Mont.
- Davidson, George B., B.S. *Prince Bay, Staten Id., N. Y.*  
In employ of George F. Hardy, Hydraulic & Mill Engr., 309  
Broadway, N. Y., on construction of pulp mill at Iroquois Falls,  
Ontario, Can.
- Gibson, Wm. Martin, B.S. *East Ryegate, Vt.*  
Street foreman, Hastings Pavement Co., New York City, 25  
Broad St.
- Kingsbury, Elbridge Herbert, B.S. *257 Roxbury St., Keene, N. H.*  
No report.
- Perkins, Herbert Marsh, B.S. *Windsor, Vt.*  
Asst. in Dept. Maint. of Way, North Pac. Ry., Tacoma, Wash.
- Proctor, Henry Sherman, Jr., B.S. *31 Palmer St., Westerly, R. I.*  
With Monks & Johnson, Mech. Engrs. and Architects, 7 Water  
St., Boston, Mass.
- Stiles, George Henry, B.S. *Goffstown, N. H.*  
With the New England Construction Co., 201 Devonshire St.,  
Boston, as draftsman, during the summer.
- Tucker, Clayton Elmer, B.A. *41 Harvard St., Chelsea, Mass.*  
With Tyson, Weare & Marshall, general contractors, Boston,  
Mass.

## FIRST-YEAR CLASS (T. S. C. E., 1915)

(The year of this class began July 17. Unless otherwise indicated, members of this class are Seniors in Dartmouth College and candidates for the College degree of B.S. in 1914).

Davidson, Frederick Armstrong	<i>New Rochelle, N.Y.</i>	19 Anderson St.
Davidson, Herman	<i>New York City</i>	320 E. 67th St.
Edson, Carroll Andrew	<i>New York City</i>	680 St. Nicholas Ave.
Elkins, Edgar Harold	<i>Lakeport, N. H.</i>	17 Laurel St.
Emerson, Dean Abbott	<i>Milford, N. H.</i>	4 Souhegan St.
Foss, Raymond Haskell	<i>Dover, N. H.</i>	10 Hill St.
Frost, Henry Bradford	<i>Arlington, Mass.</i>	58 Old Mystic St.
Hands, Wm. Chas., Jr.	<i>New York City</i>	205 West 130th St.
Lowell, Henry Osgood	<i>West Medford, Mass.</i>	32 Irving St.
Maddalena, Arthur Daniel	<i>Boston, Mass.</i>	203 Clarendon St.
Margeson, James Parker	<i>Winthrop, Mass.</i>	204 Lincoln St.
McClary, George Brewer	<i>Oak Park, Ill.</i>	126 Horne Ave.
Munkelt, Albert Ernst	<i>Brooklyn, N. Y.</i>	668 Argyle Rd.
Olson, Karl Oscar	<i>Worcester, Mass.</i>	8 Victor Ave.
Picken, Marshall Woolley	<i>New York City</i>	457 West 141st St.
Pierce, Clarence Warren	<i>Fairlee, Vt.</i>	
Potter, Howard Huntington	<i>Brookline, Mass.</i>	29 Crowninshield Rd
Pritchard, Richard Edward	<i>Troy, N. Y.</i>	659 3rd Ave.
Remsen, John J.	<i>Brooklyn, N. Y.</i>	1 Remsen Pl.
Richmond, Allen Pierce	<i>Dover, N. H.</i>	242 Central Ave.
Saville, Thorndike	<i>Hartford, Conn.</i>	53 Beacon St. No.
(Harvard, 1914).		
Stiles, Harold Andrew	<i>Denver, Colo.</i>	53 Irvington Pl.
Stratton, Stanley Carter	<i>Bradford, N. H.</i>	
Taylor, Alfred Richard	<i>Washington, D. C.</i>	2018 O St., N. W.
Van Riper, Harold Griffith	<i>Blue Point, Long Island, N. Y.</i>	
Weed, Frederick Harrison	<i>Lynn, Mass.</i>	32 Summit Ave.

# OCCURRENCES—SESSION YEAR 1912-1913

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## ANNUAL EXAMINATION AND GRADUATION

APRIL 25 AND 26, 1913

### THESES AND CANDIDATES

FOR THE DEGREE OF CIVIL ENGINEER

1. The Comparison of "Surface-cutter" Granite-dust with Sand in Concrete. Also Design and Construction of a Sand-Shaker.  
HAROLD TOWER BAKER, B.S. *Hanover, N. H.*  
RALPH EDMUND BAKER, B.S. *Manchester, N. H.*
2. A Sanitary Survey of the Village Precinct, under general direction of Dr. H. N. Kingsford, Bacteriologist of New Hampshire State Laboratory of Hygiene, and Medical Director of the College.
  - (a) Existing Sewers and Sewage Disposal.  
EDMUND IRVING MITCHELL, B.S. *Brooklyn, N. Y.*
  - (b) Eating Clubs, Food Supply and Disposal of Waste.  
MARK GEORGE SNOW, B.S. *Middleboro, Mass.*
  - (c) General Housing Conditions, Including Fire-protection.  
SAMUEL SPAULDING STEVENS, B.S. *Salem, Mass.*
  - (d) Dairies, Milk Supplies and other Dairy Products.  
RIED HERRICK STONE, *Concord, N. H.*
3. Investigations for Foundations, Waterway and Other Features of the Proposed Hanover-Norwich Bridge,—Three Arches of Stone-faced Concrete.  
NELSON LUTHER DOE, B.S. *Bradford, Vt.*  
RALPH EDWARD WHITNEY, B.S. *Keene, N. H.*
4. Increase of Storage for the Hanover Water-Works, serving Dartmouth College and the Village Precinct.  
GEORGE HITCHCOCK, B.S. *Newton, Mass.*  
LEWIS CLEMENT WATERBURY, B.S. *Oriskany, N. Y.*

5. Renovation of the Athletic Field of Dartmouth College and Improvement of its Facilities.

GEORGE HOBART FARRINGTON, B.S.

*Kingston, Mass.*

SAMUEL HOBBS, B.S.

*Pelham, N. H.*

LEW KNOWLTON PERLEY, B.S.

*Laconia, N. H.*

#### JOINT GRADUATING EXERCISES AND DINNER

After the examination of the candidates through the reading and discussion of the theses, the Board of Overseers made the usual recommendations for the award of diplomas. At 6 P. M., the Board of Overseers, the Faculties of the Medical College, Thayer School of Civil Engineering, and Tuck School of Administration and Finance, and candidates for the three professional degrees met in the Faculty room of the new Administration Building where the diplomas were presented with simple formalities by the President of Dartmouth College to the three graduating classes. Immediately after this, adjournment was made to College Hall where, by invitation of the Trustees of the College, all of the participants in the aforesaid exercises partook of the graduation dinner. This was attended also by three members of the Board of Trustees, President Nichols presiding. Appropriate remarks were made by one representative of each institution, one of the Trustees, and one speaker from each of the classes.

#### SOME INCIDENTS OF THE YEAR.

(The following paragraphs are abstracted from a review of the year written for the Dartmouth Alumni Magazine.)

"This class was the first to enjoy the increased facilities of the new building during the entire year and the advantages were fully appreciated and improved. As a testimonial a substantial class donation was subscribed for equipment. All became members of the Thayer Society of Engineers.

"The members of the class had an opportunity to participate in the investigations, by soundings and borings, for locating the site of the proposed three-span arch bridge across the Connecticut River just above the Ledyard bridge. The Boston & Maine Railroad Co., through Mr. A. B. Corthell, Chief Engineer, kindly loaned a boring apparatus and an assistant engineer to teach the boys the trick of using it. Later, Phillips & Worthington of New York, sent an expert with a more powerful machine, and two members of the class



acted as inspectors and recorders on this work. This was done after the ice became thick enough in January to afford support for men and tools. These investigations also called for a careful study of the regimen of the river, for which several cross-sections were determined; among these one at the deep, narrow gorge in the rock, where the river rushes past "Nigger Island." As no ice can form there three members of the class borrowed the cable rig from the American Telephone & Telegraph Co., suspended it over the narrow part of the channel, and took soundings from the hanging trolley chair at five feet intervals. Width at high flood 400 feet, divided into two parts by the island.

"The annual meeting of the Thayer Society of Engineers in New York, January 14, was the largest in its history. There were present Mr. Mathewson of the Board of Trustees of the College, Mr. Snow (T. S. C. E. 1875) and Mr. Hovey (T. S. C. E. 1889), representing the Board of Overseers, and Professors Fletcher, Hazen, and Holden for the School. The loyal interest and continued financial aid from this body of alumni, none of whom have more than moderate incomes, is noteworthy. These reunions are always much enjoyed by attending members.

"The total attendance at the School during the year was 29, which was less than for some years past; that of the previous year having been 37, of year before that, 38; and of successive years before those,—37, 39, 34, etc. With an entering class of 26 in July, the total for the coming year, after September 16, promises to be about 35 or 36."

"Acknowledgements are due to friends and graduates for service rendered to the school during the past year: Mr. George F. Hardy, Hydraulic and Mill Engineer of New York gave a donation towards equipment; Mr. J. P. Snow, Overseer and Consulting Engineer of Boston, a set of the Century Cyclopedia for the library, besides his generous annual contribution to the Thayer Society fund; several have sent useful photographs, blueprints, and articles for the laboratories; also to the speakers and lecturers before the classes—noted on page 19, whose good-will was highly appreciated.

"During the year a number of interesting letters from Thayer School men have given clear descriptions of works in hand, aided by photographs. These letters are inspiring to the students and much valued by the teaching staff,

"In November a tour of inspection of works was made to Worcester and Boston under personal conduct of the Director and Professor Holden, by practically the entire membership of the school. Professor A. W. French of the Worcester Polytechnic Institute (T. S. C. E. 1892) contributed to the success of the visit to Worcester by advice and personal attention. By courtesy of Mr. Charles Firth of the Boston & Albany Railroad, the remarkably heavy and extensive works for abolishing grade-crossings were inspected; the always interesting and spectacular operations at the works of the American Steel and Wire Company were inspected by courtesy of the management; Mr. Mathew Gault (Dartmouth, 1901), superintendent of the sewer department, personally took the party over the famous sewage disposal works, where the novel feature was the experimental Imhoff tank. Mr. S. C. Rogers, constructing engineer, took the party through a very interesting new plant for manufacture of sand-lime brick. The testing rooms of the Institute were visited under direction of Professor French, and an interesting test of heavy timber columns seen. In Boston, the remarkable mechanical equipment of the Filene Stores was inspected, under personal guidance of E. M. Hopkins (D.C., 1901), Supervisor of Personnel. The courtesy of C. L. Berger and Sons, makers of high-grade engineers' instruments was cordially extended in a visit to their establishment. Mr. J. P. Snow personally conducted the party to and through the subway construction under Boylston Street. Mr. J. G. Andrews (T. S. C. E., 1902) conducted a party through the Boston Bridge Works, where the fabrication of steel bridges and buildings was seen in various stages of progress.

"By courtesy of Professor Allen of the Worcester Polytechnic Institute, the students of the Thayer School were invited to witness his test of a new 1750 horsepower turbine at the Wilder Paper Mills, February 2nd and 3rd.

"Members of the faculty have had a few activities outside. Occasional expert surveys are called for, usually for a case in court. One has been civil engineer member of the New Hampshire State Board of Health during eighteen years, writing and advising on sewage disposal for households and neighborhoods, etc. No salary is paid to members of the Board. Professor Holden was lately elected one of the three Commissioners of the Hanover Village precinct, and has been actively discharging large and varied responsibilities in relation to road construction, maintenance, etc.

This for 'summer vacation' work. Professor Hazen previously served nine years as Commissioner, during which he built macadam pavement in many of the streets. Mr. Ruggles has done a considerable amount of surveying for outside parties.

"The policy of the School, maintained for more than thirty years, is so well known to Dartmouth alumni as not to need re-statement at length. It is based upon the fact that correct practice can result only from correct theory derived from a knowledge of the fundamental principles and methods which underlie all the science and art of engineering, however much developed and specialized in these days. Our task is to show how the bewildering complexity and diversity of modern engineering practice is reducible to a simple and unified program of essentials, and to give such fundamentals that the student may be able to specialize hereafter in any direction and to any extent."

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The spring flood culminating on March 28th, was the highest ever recorded by gauge marks at Hanover bridge, Orford bridge and Bradford R. R. Station. The U. S. Government observer at Orford figured approximately a discharge of 57,400 second feet. From observations made at Hanover bridge and Wilder dam, the discharge over that dam (water 9.6 ft. above the crest) was figured to exceed 60,000 second feet, from a drainage area of about 3250 square miles. At White River Junction, the combined action of the flood and a jam of logs dislodged the highway bridge and drove it end on against the B. & M. R. R. Bridge on which it worked considerable damage. The logs jammed so thickly against the Connecticut River R. R. bridge that the current undermined the Vermont abutment and nearly wrecked the west span; the repairs to this cost upwards of \$20,000. Mr. J. P. Snow (T. S. C. E. 1875) was chosen by the selectmen of Hartford, Vt., as consulting and executive engineer to build a new steel highway bridge at White River Junction.

## PERSONAL MENTION

**Visits of Thayer School Men** have been made during the past year—September, 1912, to September, 1913—as follows:

- J. P. Snow, 1875.
- Charles F. Chase, 1889
- O. E. Hovey, 1889.
- C. L. Carpenter, 1889.
- H. N. Savage, 1890.
- Edward M. Stone, 1894.
- John L. Mann, 1898, with Mrs. Mann, from San Domingo, and Mrs. Wm. H. Balch.
- Samuel J. Smith 1901, with Miss Smith.
- Everett M. Stevens, 1902, and Mrs. Stevens.
- Harry C. Hill, 1903.
- Albert Smith, 1903, and Mrs. Smith.
- J. H. Fellows, 1905.
- W. E. Hawley of '06, Mrs. Hawley and Miss Hawley.
- F. F. Parker, 1907.
- H. G. Porter, 1907.
- S. C. Bartlett, 1908.
- F. B. Greenleaf, 1908.
- H. D. Hinman, 1908, from Canal Zone, Panama.
- Roy Mullins, 1908, and Mrs. Mullins.
- R. S. Danforth, 1909.
- F. G. Cook, 1910, and Mrs. Cook.
- H. A. Ward, 1910.
- John C. Beebe, 1910.
- E. W. Higbee, 1911.
- J. W. Ingalls, 1911.
- Earle H. Pierce, 1911.
- H. L. English, 1912.
- L. C. Marshall, 1912.
- Roy E. Lewis, 1913.
- E. I. Mitchell, 1913.
- C. M. Goodrich, 1913.

Other friends, visitors at the School, were: George C. Stoddard, Dart. Coll., 1881, Secretary of Thayer Soc. Engrs., March 14th; and again with Mrs. Stoddard at Commencement; Allen Hazen, Con. Engr., New York City. In the fall, Dr. J. L. Hildreth of Winchester, Mass., D. C., 1864; and Dr. Edw. Cowles, 1859.

Letters, blue-prints, maps, photographs and interesting items have been received from S. M. Wilcox, 1887; A. B. Clark, 1900; C. E. Paddock, '01; Donald Derickson, '02; H. L. Muchemore, '06; A. H. Ayres, '07; W. H. Fox, '07; F. B. Greenleaf, '08; R. T. Young, 1912; and L. K. Perley, E. I. Mitchell and M. G. Snow, 1913; from M. O. Withey, '05, papers on tests of beams, etc., at laboratory of University of Wisconsin; from H. R. Messer, 1906, copies of publications of the Virginia State Board of Health, of which he is engineer; from J. H. Dunlap, '08, a copy of a paper on Purification of Water for Residences, read before the Iowa Engineering Society; from David M. Hildreth, C. S. D., 1887, Supt. Div. of Topography, Post Office Dept., Washington, D. C., a map of postal routes in N. H. and Vt.; from C. M. Goodrich, '13, parts for the testing machine; and others not now recalled.

It is reported that William C. Phelps, '95, has had an extended outing in the Canadian Northwest, and F. H. Munkelt, '09, has made a trip to Europe.

Mr. A. T. Fowler, '01, writes that in 1912 he made a profile survey of 125 miles of the Snake River in Idaho, and carried elevations for the entire distance with plane table and telescopic alidade, and closed within 5.3 ft.

The experiments of Albert Smith, '03, Prof. of Structural Eng., Purdue University, for measuring actual wind pressures on buildings, deserve more than the mere mention in the Addenda of the Annual of 1912. He demonstrated some very interesting principles and relations regarding relative pressure on windward wall and roof, varying with proportion of wall-height to roof-height; the conditions affecting *suction* on the leeward wall and roof, and relative amount of air flowing around the ends. He recommended some changes in the methods of assuming wind loads on mill buildings. (Paper read before the Western Society of Engineers, Chicago, Oct. 1912).

Roy E. Lewis, non-graduate of T. S. C. E., 1913, visited the school, Sept. 20th, being on vacation, in service of the United Fruit Co. He reported the completion of the large reinforced concrete hospital for the company at Quirigua, Guatemala, under his

chief, Mr. *Harold Parker*, T. S. C. E., 1908. Both expect to go soon to Santa Marta, Colombia, to build a similar structure for the benefit of the great plantations of the United Fruit Co. in that region; and, later, to Almirante, Panama, to build another hospital. Mr. Parker visited the School with Mrs. Parker and Mr. Lewis, in October, and gave an interesting talk on Guatemala and its people and their own work of varied construction.

In May the Director visited the Panama Canal, and spent eight days inspecting the works. Besides courtesies extended by Col. Goethals, Chairman and Chief Engineer of the Canal Commission, by introduction to members of the staff and the showing of plans at headquarters, the three Thayer School men on the works devoted much personal attention and aid in facilitating close inspection of the principal operations. O. E. Hovey ('89) was yet there for the test of the first completed of the six huge emergency dams, built by the American Bridge Co., two for each set of locks; the test had been made with entire success at the Gatun locks on the day of arrival. C. E. Langley (of Th. Sch. '08), Inspector, gave personal conduct through the Gatun locks, from the emergency dams and upper approach walls, over operating tracks and through interior passages and chambers for the operating machinery, to the lower entrance section where work was still in progress at 42 ft. below sea level. The towering gates were about 90 per cent. completed. H. D. Hinman (of Th. Sch., '08), Engr. in charge of construction of the Pacific terminals, during an entire day exhibited plans and went with the director over the amazing extent of territory (Balboa) where a bewildering variety of work was in progress on a layout of several hundred foundation piers sunk 50 to 70 feet through mud; dry dock, wharves, a 100,000 ton coal pocket, and long avenues of buildings, designed for future maintenance and operation. For these undertakings he was in command of 1900 men, and 11 miles of railroad track, with locomotives and dirt trains, steam shovels, derricks and other equipment as needed. On another day the city of Panama and its neighborhood were seen. F. C. Stanton (Th. Sch. '03), Asst. Engr. in charge of construction of Colon breakwaters, gave an invitation for the Saturday trip, by tug-boat, to the Porto Bello quarries, 18 miles to the eastward, whence comes all of the hard rock for the sea face of the breakwater, in blocks from six to 12 tons in weight. Here, from the operating tower, was a full view of the blasting under the nearly vertical high quarry face, loading

and transport by train and reloading onto the carrying barges for the sea trip. Here, also, was the crusher plant, where all the rock was crushed for the concrete structure of the Gatun locks. Mr. Stanton's program for another day included trip by launch and special locomotive from Colon to the spillway and power-house, the former nearly completed; a walk along the dam to the Gatun locks, by launch to one of the suction dredge boats in full operation; by launch across Colon Bay to Toro Point, and a trip by hand-car over the entire length of the breakwater, 11,000 feet long. In this vicinity, the fortifications were inspected, by favor of the commanding officer. Mr. Stanton also procured the privilege of a trip by launch on Gatun Lake with Mr. Beyer, engineer in charge of the lighting and buoying of the entire ship channel. The course was from Gorgona to Gamboa Bridge, thence to the approach walls of Gatun Locks, about 27 miles, with the lake level at near 49; and an opportunity was given to view the operation of pulling the dead trees from the ship channel. By invitation of Col. Goethals, the Pedro Miguel and Miraflores locks were viewed in an official inspection by a Congressional delegation. The trip of nine miles through Culebra cut was made on one of the regular excursion trains, which encountered a tropical downpour of rain during half an hour, and escaped being pinched in one of the bad "slides" by only 15 or 20 minutes. As friends declared, the early part of the rainy season was preferable to the dry season for a visit, while the principal great features of the work were so near completion, and yet open to inspection throughout their whole extent.

The Director was re-appointed by Gov. Felker as member of the N. H. State Board of Health for a sixth term of four years; and was elected President of the Board at the September meeting.

## CHANGES AND CORRECTIONS

*H. A. Barends*, p. 62. Statement should read: Inspector on Sewers and Street Construction under the Civil Service, Albany, N. Y.

Ewart G. Horne of 1913, in a belated letter, dated Sept. 7., writes from St. John, N. B.: "I am now Engr. and Asst. Supt. for E. G. M. Cape of Montreal on a two year contract here for the Atlantic Sugar Refineries, Ltd. Residence is the same as reported."

**Clarence E. Ellsworth**, p. 59, by belated "return," reports that he has been District Engineer in Alaska since April, 1913. He is also Assoc. Memb. Am. Soc. of C. E., and Member of the Washington Soc. of Engrs. Address: U. S. Geol. Survey, Washington, D. C.

*Arthur W. Hare*, of '03, p. 41. Statement should read: Previous to July 10, Estimator, etc.

**Guy E. Woodward**, '06, reports in a belated "return," address care of A. E. Griffin & Co., Ry. Contractors, Mile 288, B. C., G. T. P. Ry., Fort George, B. C. "Now with the contracting firm, L. P. Byrne & Co."

**George R. Colson**, by letter dated Sept. 19, reports: "Since May, 1911, I have been employed by the Caribbean Construction Co., 55 Wall St., New York, as Res. Engr., at St. Marc, Haiti; resigned Aug. 11, 1913, because of changes in the organization. My work in Haiti was entirely successful, and, of the score or more of engineers who went there, I was one of three who could 'stick it out' to the turning of the way."

**R. R. Marsden**, '09, by wedding cards announces his residence at 65 West 127th St., New York City.

*Perley N. Storer*, of class of 1911, wrote under date of Sept. 26, that he is Fire Insurance Inspector for the Underwriters' Bureau, of New England, 151 Milk St., Boston, Mass. Perm. as heretofore.

**Carroll Paul**, '04, who has returned from the Philippine Islands, reports: "Since Sept. 18, 1913, Asst. to Public Works officer, Navy Yard, Philadelphia, Inside Superintendent. Present address: Navy Yard, Philadelphia, Pa.



*Edw. J. Johnson*, of 1897, reports under date of Sept. 27. No change, but no longer memb. of the engineering societies as stated on p. 33.

*Harold A. Campbell*, of 1912, in September entered Columbia University, New York, to take the course in Mechanical engineering.

**R. H. Stone**, 1913, p. 61. Sailed in July to take position as Asst. Engr. on the Santa Marta Ry., Santa Marta, U. S., of Colombia, So. America.

**Arthur B. Barnes**, '09, reported in October, no change.

*F. N. Tinker*, of '06, reports address 129 E. 59th Street, New York City.

**C. I. Peckham**, '07, gives new address, Box 651, Delhi, Delaware Co., N. Y.

*Walter E. Hawley*, of '06, new address of Post & McCord is, 101 Park Ave., New York City.

**Arthur W. Stone, B.S.**, 1895, visited the School in October and reported change of address as follows: Gen. Manager Hoosier Cut Stone Co., Bedford, Ind.

**Wm. H. Ford, B.S.**, 1895, is general representative and agent in Middle and Eastern States for the Scherger Rolling-Lift Bridge Co.

GEOGRAPHICAL DISTRIBUTION OF THAYER SCHOOL  
MEN, SEPTEMBER, 1911, TO SEPTEMBER, 1913.

(Covering two years, so that many names appear twice.)

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**Alaska:** A. J. Ela, C. E. Ellsworth.

**Alberta, Canada:** A. H. Ayers.

**Argentina:** George F. Baine, H. B. Tabor.

**Brazil:** F. S. Weston, G. H. Nolan.

**British Columbia:** H. W. Clark, M. J. Leahy, J. M. Smyth.

**California:** J. A. Worthen, E. P. Dewey, H. S. Eaton, H. H. Sears.  
C. W. Davis, B. W. Matteson, H. L. Muchemore, E. A. Lincoln.

**Carolina (North and South):** H. D. King (Charleston,) J. T. Chase, W. M. Silleck.

**Colombia, S. A.:** F. A. Hatch (Santa Marta).

**Colorado:** D. R. Reed, J. Y. Jewett, M. E. Witham, H. R. Harrison, W. W. Curtis.

**Connecticut:** D. E. Bradley, C. H. Cheney, C. F. Chase, E. M. Stone, C. E. Paddock, A. H. Greenwood, H. L. Watson, R. B. Doane, A. H. Schilling, J. F. Doonan, J. H. Fellows.

**Cuba:** J. A. Macnicol, G. H. Nolan.

**Dakota (North and South):** F. G. Cook.

**Florida:** E. R. Davis, F. S. Perham (1910), F. S. Weston.

**Georgia:** J. W. Ash, L. C. Marshall.

**Guatemala:** Harold Parker, R. E. Lewis.

**Hawaii:** C. B. Worthen, H. W. Robinson.

**Idaho:** F. W. Welch.

**Illinois:** G. A. Butler, L. S. Oakes, C. A. Rich, H. O. Rugg.

**In or Within Ffty Miles of Chicago:** W. W. Curtis, W. E. Angier, A. W. Hardy, J. B. McIntyre, F. H. Stowell, J. S. Adams, H. L. Boynton, W. R. Kimball, C. P. Richardson, W. C. Winkley, M. G. Snow.

**Indiana:** M. A. Howe, Albert Smith.

**Iowa:** J. D. Lonsdale, J. H. Dunlap, R. W. Noyes, W. D. Gordon.

**Kansas:** J. F. Springfield, G. F. Baine, H. K. Hibbard.

**Kentucky:** J. A. Gilman, W. H. Fox, A. L. Buxton, J. H. Stone.

**Louisiana:** J. A. Anderson, Donald Derickson (New Orleans).

**Maine:** W. M. Ames, C. K. Hosford, F. B. Greenleaf, N. H. Knight,  
A. A. Hormel, H. M. Brown, H. T. Baker.

**Maryland:** H. M. Paul, C. M. Soule.

**Massachusetts:** C. E. Andrews, R. H. Brown, A. W. French, A.  
A. Adams, O. P. Tabor, C. E. Paddock, H. K. C. de Anguera,  
A. W. Hare, H. N. Cross, G. A. Lewis, W. T. Shaw, R. W.  
Brown, F. F. Parker, W. C. Winkley, F. S. Austin, J. W. In-  
galls, J. M. Porter, J. D. Brewster, J. W. Lewis, N. L. Doe,  
Samuel Hobbs.

**In or Within Fifty Miles of Boston:** J. P. Snow, B. Phillips,  
F. B. Sanborn, H. A. Symonds, H. R. Thurston, J. H. Letteney,  
H. N. Chase, G. W. Parker, W. B. Plumer, M. F. Brown, W.  
H. Ham, A. L. Galusha, J. G. Andrews, G. A. Sampson, H. W.  
Fitts, C. L. Bourne, C. R. Main, A. B. Barnes, F. K. English,  
Benj. Ayer, H. B. Dore, R. E. Parker, E. H. Pierce, R. A.  
Sherwin, G. E. Chamberlin, A. W. Wood, S. C. Beane, W. M.  
Gooding, E. M. Stevens, R. E. Whitney, J. D. Brewster, G. H.  
Stiles, H. S. Proctor, C. E. Tucker, (34).

**Mexico:** Vicente Molina, G. W. Newman.

**Michigan:** H. G. Roby, E. S. Poole.

**Minnesota:** G. H. Hutchinson, S. A. McCoy, L. S. Oakes, P. W.  
Stickney, C. C. Wilbur.

**Missouri:** E. K. Blanchard, C. D. Lamb, H. M. Hess.

**Montana:** H. N. Savage, W. A. Perkins, A. H. Ayres, M. C. Knapp,  
C. R. Main, R. W. Hazen, J. W. Childs, J. M. Porter, J. C.  
Beebe, S. S. Stevens, H. W. Cole.

**Nebraska:** Charles Sargent, A. H. Norris, H. D. Comstock, W. B.  
Smith.

**New Brunswick:** J. W. Crowell, E. G. Horne.

**New Hampshire:** J. T. Woodbury, J. V. Hazen, C. H. Pettee, R.  
T. Gile, J. D. Hutchinson, Rush Chellis, C. F. Robinson, John  
Walker, C. T. Rossiter, W. H. Langmaid, S. J. Lord, H. A.  
Cochran, C. A. Holden, C. H. Hoyt, E. H. Hunter, E. M.  
Stevens, H. M. Haskell, F. F. Parker, N. F. Davis, S. L.  
Ruggles, J. H. Stone, R. B. Clement, D. T. Reed, P. S. Dow,  
L. C. Marshall, E. W. Keith, R. E. Baker, W. M. Gooding, L.  
K. Perley, R. H. Stone, H. M. Brown, J. D. Brewster, R. T.  
Young.

**New Jersey:** S. B. Cady, S. J. Johnson, F. L. Wheaton, W. N. Hazen, H. E. Abbott, C. F. Goodrich, R. C. Wood, Roy Mullins, J. A. Cassidy, W. H. Eastman, Maurice Readey, Fletcher Rogers, H. L. English.

**New York:** J. W. Record, F. H. Trow, H. A. Warden, J. L. Sanborn, P. H. Winchester, C. R. Chase, D. Derickson, H. C. Hill, H. E. Plumer, H. C. Adams, H. M. Morse, H. L. Ropes, O. L. Burdett, N. S. Buckbee, F. B. Greenleaf, H. A. Morey, W. C. Rich, F. E. Schilling, B. H. Dudley, W. L. Smith, H. A. Ward, L. H. Sisson, C. E. Locke, K. J. Knapp, E. S. Poole, George Hitchcock, R. H. Stone, J. S. McDonald.

**In or Within Fifty Miles of New York City:** S. B. Cady, J. J. Hopper, S. J. Johnson, C. H. Nichols, O. E. Hovey, T. Flynn, A. B. Clark, G. P. Wood, H. S. Ferguson, E. J. Morrison, W. C. Phelps, B. F. Welton, G. J. McIndoe, A. W. Stone, J. L. Averill, E. B. Wardle, J. M. Gibson, T. T. Whittier, E. H. Sprague, F. E. Cudworth, F. B. Marsh, W. F. Rugg, E. F. Whitaker, L. B. Farr, J. E. Porter, H. S. Richmond, A. C. Tozzer, T. R. Remsen, C. A. Studwell, J. W. Mair, F. W. Osgood, W. A. Conley, C. P. Smith, G. R. Colson, W. E. Hawley, C. M. Everett, H. G. Porter, S. F. Garvin, S. C. Bartlett, H. M. Gray, W. M. Silleck, R. R. Marsden, F. H. Munkelt, P. L. Thompson, D. R. Bradley, O. W. Cushman, R. R. Gould, A. L. Herrick, E. W. Higbee, W. H. Krafft, Fletcher Rogers, H. A. Wells, A. W. Wood, J. R. Kinney, G. M. Perry, P. N. Storer, J. J. Boynton, H. W. Robinson, A. A. Hormel, H. W. Pease, R. T. Young, F. L. Wheaton, W. N. Hazen, H. E. Abbott, C. F. Goodrich, R. C. Wood, J. A. Cassidy, W. H. Eastman, Maurice Readey, H. L. English, E. I. Mitchell, S. S. Stevens, H. A. Barends, J. M. Dolan, E. M. Stiles, W. M. Gibson (76).

**Nova Scotia:** W. C. Risley, John Walker of 1893.

**Ohio:** J. H. Fellows, Roy Mullins, H. M. Morse, C. A. Luck, A. B. Rutherford, A. L. Buxton, E. M. Steward.

**Ontario, Canada:** George B. Davidson, J. J. Kerley.

**Oregon:** G. E. Woodward, R. S. Danforth, C. W. Ross, F. G. Leary.

**Panama, C. Z.:** F. C. Stanton, H. D. Hinman, C. E. Langley.

**Costa Rica Boundary:** F. S. Hanson.

**Pennsylvania:** G. F. Sparhawk, P. L. Barker, H. B. Shattuck, M. G. Littlefield, W. L. Hutchinson, F. D. Sears, E. R. Cate, F. W. Newhall, Crosby Tappan, L. B. Smith, R. H. Peck, R. G. Knight, W. L. Smith, A. L. Buxton, G. H. Farrington.

**In or Within Fifty Miles of Philadelphia:** F. R. Davis, W. H. Ford, M. H. Hoyt, S. C. Beane, W. F. Kimball, F. S. Whitcomb.

**Philippine Islands:** Carroll Paul.

**Province of Quebec:** M. J. Leahy, S. F. Garvin, R. T. Young, R. F. Hill.

**Puerto Rico:** C. L. Carpenter, H. T. Pierce, L. C. Waterbury.

**Rhode Island:** S. G. Walker, C. I. Peckham, E. T. Richards, F. E. Hanson.

**Saskatchewan:** Sherman Smith, J. C. Beebe.

**South America:** H. B. Tabor, G. F. Baine, (Buenos Aires), F. S. Weston, G. H. Nolan, (Brazil), F. A. Hatch, (Santa Marta, Colombia).

**Tennessee:** J. W. Ash, W. R. Kimball.

**Texas:** S. M. Wilcox, R. L. Libby.

**Unknown:** R. Hunter, A. L. True, F. N. Tinker, A. J. Wheeldon, J. E. Hansbury.

**Utah:** W. R. Kimball.

**Vermont:** A. E. Winslow, C. K. Hosford, G. A. Reed, H. C. Whitmore, J. O. Goodrich, R. T. Young, H. A. Campbell, C. M. Goodrich.

**Virginia and West Virginia:** H. R. Messer, J. J. Kerley, A. A. Hormel, R. H. Stone, M. G. Snow.

**Washington, D. C.:** H. M. Paul, E. D. Hardy, A. B. Ilsley, C. H. Hoyt, A. T. Fowler, O. A. Mechlin, Reuben Hayes, C. E. Ellsworth, L. C. Marshall.

**Washington State:** E. J. Johnson, S. J. Smith, L. M. Perkins, H. L. Muchmore, A. J. Ela.

**West Indies:** *Santo Domingo City*, W. H. Balch, J. L. Mann.

*Puerto Rico* see above. *Haiti*, G. R. Colson. (St. Marc.)

**Wisconsin:** M. O. Withey, H. G. Roby.

**Wyoming:** J. J. Marshall, John Walker, H. D. Comstock, V. W. Russell.

**Yucatan:** Vicente Molina (Merida.)

## STATISTICAL SUMMARY

Graduates of Dartmouth College	-	-	-	-	-	-	331
Graduates of other Colleges	-	-	-	-	-	-	25
Partial College courses	-	-	-	-	-	-	15
No systematic College course	-	-	-	-	-	-	15
Total attendance, forty-two years, forty classes	-	-	-	-	-	-	376
Total who attended both years, full course	-	-	-	-	-	-	267
Total who attended one year	-	-	-	-	-	-	109
Percentage who took graduate course,—six or five years							71%
Average attendance each year,— $(2 \times 252 + 106) \div 40 =$						nearly	16
Number for present session year, not included in averages							37
Deceased	-	-	-	-	-	-	30
Membership in Am. Soc. Civ. Engrs. and Mech. Engrs. (living)							79
Membership in other engineering and kindred societies	-	-	-	-	-	-	108
Membership in Thayer Society of Engineers	-	-	-	-	-	-	160

# OCCUPATIONS OF THAYER SCHOOL MEN, BOTH IN THE PRESENT AND PAST, SHOWING LARGE AND NOTEWORTHY PARTICIPATION IN THE WORLD'S WORK

This exhibit is approximate; some having been engaged in two or more pursuits are counted more than once; but not all the individual service during the entire period of 38 years, nor all of the works on which they have been employed, are included.

## CIVIL ENGINEERS AND SURVEYORS

### BUILDING CONSTRUCTION, INCLUDING REINFORCED CONCRETE, POWER PLANTS, MILL CONSTRUCTION, ETC.

General practice: consulting and contracting, mill engineering, and power development (1 in Hawaii) - - -	30
Chief and asst. engrs. for contractors; managers - - -	14
Engrs. in charge of construction: including Harvard Stadium, Phelps Pub. Co.'s bldg., Springfield, Mass.; seven great warehouses for Bush Terminal Co., Brooklyn, N. Y.; Viaducts of Fla. E. Coast Ry., etc. - - -	39
Assts., instrumentmen, draftsmen, inspectors, etc. - - -	51
Surveyors and engineers, private practice - - -	16
U. S. Geol. Survey: topography, water resources, etc. - -	10

### BRIDGES AND OTHER FRAMED STRUCTURES OF IRON AND STEEL

Those concerned in the design, manufacture, or erection, as:

Chief Engineers, Asst. Chief Engineers, Managers or Presidents of Companies; members of firms - -	10
Sales or Contracting Engineers (one in Argentina, S. A.) -	4
Consulting and Contracting Engineers; Chief Draftsmen -	12
Designers, Estimators, and Draftsmen - - -	26
Resident Engineers in charge of erection of the following (among others) - = = = = = = =	6

Kentucky and Indiana Bridge over the Ohio River; Fort Madison Bridge over the Mississippi River; Wabash Bridge, Terra Haute, Ind.; Thebes Bridge across Mississippi River; Poughkeepsie Bridge over Hudson River (reconstruction); Stock Exchange and other Steel Skeleton buildings, New York; Construction of South Side and West Side Elevated Railways, Chicago; Design and erection of structures for Dreamland Park, Coney Id.; Steel Work of Hudson Terminal Bldg., Bankers' Trust, Municipal Bldg., etc., New York City.

Responsibility for much of the work of design of the following structures:

The Sabula swing bridge; bridges erected on the Boston & Maine Ry. system during 18 years; one as Asst. to the late Geo. S. Morison, participated in the design of several large bridges in the Mississippi Valley, the Bellefontaine, Cairo, Memphis bridge, etc.; one, as Prin. Asst. Engr., designed the steelwork of the great power houses for the Manhattan and Interborough Rapid Transit systems of New York City.

#### RAILROADS AND TRANSPORTATION

Chief Engineer, Gen. Manager of Ry. systems	-	-	-	3
Div. Engrs., maintenance of way engrs., etc.	-	-	-	4
Res. Eng. and Asst. Engrs. Bridges and Bldgs. dept	-	-	-	7
Locating Engrs. or chiefs of party on original survey	-	-	-	8
Engrs. in charge of construction, including contracting engr.				16

On the following works, among others:

Two tunnels on Penn. Ry.; Bergen tunnel of the D. L. & W. Ry., Hoboken; new terminal station of D. L. & W. Ry., Hoboken; South Fork Extension of Penn. Ry.; round house and yards at Wall, Pa.; two-mile section of the Subway, New York City; Guantanamo & Western Ry., Cuba; Hopatcong cut-off, D. L. & W. Ry.; Chi., Mil., & St. Paul Ry., through Bitter Root Mts.; grade revision Cumberland Valley R. R. (Penn. System), design of reinforced concrete arches up to 100 ft. span; extensions of Northern Pacific Ry.; Madeira-



Mamore Railway, Brazil; Philippine Rys., Negros, Cebu, Panay.

Asst. Engrs., Transitmen, etc., on surveys and construction	
Florida East Coast Railway, etc. - - - - -	33
Rodmen and Draftsmen, Asst. Supervisors of track, etc. -	15

## STATE AND MUNICIPAL ENGINEERS

State Engineer (1), Director Pub. Works San Domingo (1)	2
City Engineers and Surveyors - - - - -	7
Sanitary Engineer, State of Va. - - - - -	1
In charge of construction of highways and canals - - -	9
Draftsmen and general assistants - - - - -	29
Street pavements, contracting and constructing:	
Managers or chief engrs. and supts. - - - - -	4
Supts. of construction and foremen (past and present) -	27

## WATER WORKS. FILTRATION PLANTS

Superintendents, Washington, D. C., filtration plant, etc. -	3
New York Board of Water Supply Catskill Aqueduct:	
Chief Engineer for Contractor on Ashokan dam - -	1
Res. Eng. and Assts. in field or office - - - -	5
Supt. of Construction, Los Angeles and Portland Aqueducts	2
Asst. Engrs. Inspectors and Draftsmen - - - -	14

## CANALS. RIVER AND HARBOR WORK. GEODESY

Constructing Engrs. for contractors,—dry-docks, etc. - -	6
On breakwaters, Manzanillo, Mex., (2), Cuba (2), etc.	
U. S. Asst. Engrs., 11; Juniors, 6 (past and present) - -	17
Contractor or engr., harbor dredging, etc. - - - -	4
U. S. Coast and Geod. Survey:	
“Assistant” (Philippines, Alaska, transcontinental triangulation and precise levelling) Aids and deck officers,	
U. S. Lighthouse Service, Inspector (1) - - - -	10
Surveys for Nicaragua Canal - - - - -	4
Panama Canal: Res. Engr., Asst. Engr., concrete work;	
instrumentmen, etc. - - - - -	7
Civ. Engrs., U. S. Navy = = = = =	2

## IRRIGATION WORKS DEVELOPMENT

## U. S. Reclamation Service:

Supervising Engineer (1), Asst. Engrs. (8) - - -	9
Asst. Engr., in charge of all cement testing - - -	1
Junior Engineers or "Surveyors" and draftsmen - - -	10
These have done laborious service on the following projects: Belle Fourche, Shoshone, Salt River (Roosevelt dam), Huntley, Laguna dam, Klamath, Pathfinder dam, Sun River, Blackfoot Ind. project, etc.	
Constructing Engineers, 3 in San Domingo and Porto Rico	5
Consulting and Contracting Engrs. - - - - -	5

## ENGINEERING EDUCATION, RESEARCH, OTHER BUSINESS

Professors of Civil Engineering and Instructors, of whom twelve are heads of departments; and assistants - -	28
Conducting researches in laboratories - - - - -	5
Electrical and Mechanical Engineering - - - - -	7
Mining and Metallurgy (two in Mexico lately, one now) -	5
Manufacturing, including iron works, lumber, paper mills and quarrying. Proprietors, members of firms, or agents	16
Merchants (5), Farmers and Ranchmen (5) - - - -	10
Managers or Superintendents of power or light Cos., or both	3
Fire prevention engineering and insurance - - - -	11

## OTHER PROFESSIONS. LITERARY WORK

Astronomers (formerly one at Cordoba Observatory, Argentina, and one at Tokio, Japan, and U. S. Naval Observatory) - - - - -	2
Meteorologist and Forecaster, U. S. Weather Bureau - -	1
Professor of mathematics (Dean of College, 1) - - -	3
AUTHORS OF PAPERS OR REPORTS contributed to technical societies, journals, etc., or WRITERS OF TREATISES ON ENGINEERING SUBJECTS - - - - -	27
Ministry, pastors of churches or mgr. Y. M. C. A.; teaching (2)	6
Inventors; Railroad specialties, 1; hydraulics, 1 - - -	2
Physician, 1; Lawyer, 1 - - - - -	2

THAYER SOCIETY OF ENGINEERS

OF

DARTMOUTH COLLEGE

---

ORGANIZATION—MEMBERS—CONSTITUTION

AND

REPORT OF THE SECRETARY

---

GENERAL LIST OF ALUMNI

OF

DARTMOUTH COLLEGE, AND CHANDLER SCIENTIFIC  
DEPARTMENT OF THE COLLEGE, WHO ARE,  
FOR THE MOST PART, ENGAGED IN  
ENGINEERING PURSUITS

# THAYER SOCIETY OF ENGINEERS OF DARTMOUTH COLLEGE

---

*President*, HARDY S. FERGUSON '91

*Treasurer*, WM. C. PHELPS '95

*Secretary*, GEO. C. STODDARD '81

215 W. 125th Street, New York City

## *Executive Committee:*

GEO. C. STODDARD '81

HARDY S. FERGUSON '91

WM. C. PHELPS '95

A. C. TOZZER '03

F. H. MUNKELT '09

## *Advisory Board:*

ROBERT FLETCHER, *ex-officio*

W. H. PRATT '74

M. F. BROWN '98 } Term expires January, 1914

F. H. TROW '95 }

A. B. ILLSLEY '95

J. P. BROOKS '85 } Term expires January, 1915

WM. HOOD '67 }

## STATEMENT OF THE SECRETARY

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The Ninth Annual Meeting of the Thayer Society of Engineers of Dartmouth College was held at the rooms of the Dartmouth Club, 12 West 44th St., New York City, on the evening of January 14th, 1913.

A general reception was held between the hours of 6.30 and 7.30 p. m., followed by an informal dinner, which was attended by some fifty-two members and guests of the Society.

The College was represented by Prof. Robert Fletcher, director of the Thayer School, and Profs. John Vose Hazen, and C. A. Holden.

The Trustees were represented by Charles F. Mathewson, Esq., D. C. '82.

At the conclusion of the dinner, President Charles H. Nichols, who also acted as toastmaster, called the meeting to order, and after a few brief and well-chosen remarks, called for the report of the Secretary.

A summary of the Secretary's report is as follows:

During the year just ended, your Committee has held seven meetings.

Only the ordinary and routine matters of the Society have required our attention.

The statement sent out by the Treasurer, to all members of the Society, went more into details, as to just what the Society has been trying to accomplish, during the years of its existence.

The secretary, with this statement as a basis, and modified to suit the conditions, prepared a circular letter, which was sent to old Chandler graduates, and to some other of the College Alumni.

This letter brought quite a number of responses from the older graduates of the Chandler School and the College, and resulted in quite an increase in membership to the Society, from prominent Alumni.

I also wish to note the loyalty to the Society of the younger graduates of the Thayer School, a good percentage of this year's increase coming from them. The Society has had a steady growth during the year past, some twenty-nine new names having been added, the largest number in some time.

After the reports of the Secretary and Treasurer had been read, the President called for remarks, and Prof. Fletcher, Director of the Thayer School, was the first to respond. Prof. Fletcher spoke in his usual terse manner, and illustrated his remarks with pithy sayings and anecdotes. The boys enjoy his sayings, and his way of hitting the nail on the head. He brought greetings from the beloved President Emeritus, Dr. William J. Tucker.

Mr. Charles F. Mathewson, Trustee of the College, was the next speaker. Mr. Mathewson expressed his pleasure at being present at the dinner, and presented to the Society the very cordial greeting and good wishes of the Board of Trustees of the College, its President and other officers.

Prof. John P. Brooks, of the Clarkson Institute of Technology, was the next speaker. The trend of Prof. Brooks' remarks was to point to the advancement of education, and to show that the engineering educators are not only keeping in touch, but up to the front with the best men in their line, as well as with those in other branches of education: that more and more time will be spent in practical application, and the instructors will stay pretty close to their classes within the next generation.

Prof. John Vose Hazen next spoke briefly on his pleasure in attending the Annual Meeting of the Society, and of the great interest that the late Robert L. Read, who died during the past year, took in the Society and all of its doings.

The next one to respond to the President's invitation was Mr. J. P. Snow, Overseer of the Thayer School—that grand young man of the early days of the Thayer School, who has given so much of his time and support to the interests of the School. Mr. Snow spoke briefly of the founding of the Thayer School by General Thayer, and of some matters of personal interest in that connection.

Prof. C. A. Holden, of the Thayer School, spoke of the relation of the first-year Thayer men to the College: of what the

Thayer School was trying to accomplish: what its policies are, and of the kind of men that the School is trying to turn out. He also spoke of the help and assistance that the graduates of the College could render to the School by attending some of its exercises, when possible, and giving the benefit of their experience on matters of Engineering, and by sending to the School plans, drawings, photographs, etc., of Engineering works that they are or have been engaged upon.

Mr. J. J. Hopper, the first President of the Society, was the next speaker. Mr. Hopper spoke mainly upon matters relating to New York City, sub-way construction, and the good work of the Public Service Commission.

Prof. A. W. French, of the Worcester Polytechnic Institute, spoke briefly in regard to the duties of the Thayer students to the College, and mainly in emphasis of what Profs. Fletcher and Holden had said: that the Thayer School students could not do justice to their studies and spend very much time on outside matters. Prof. French also spoke in a eulogistic vein of William H. Puffer, who died during the past year.

Prof. F. B. Sanborn, of Tufts College, was the last speaker. Prof. Sanborn spoke of the problems which the faculty of the Thayer School had before them at the present time: athletics, the progress of the school, and its future: what we can do to help it along. These should be some of the everlasting questions constantly in our minds. Prof. Sanborn thinks that the Society can do a great deal in forming and shaping the policies of the School, and in cooperating with the professors.

The tellers then reported the canvass of the ballot, and the newly elected executive committee announced the officers for the ensuing year, as shown on Page 86.

After adjournment the reunion was continued in the rooms of the Dartmouth Club, to which a vote of thanks was given for their courteous hospitality.

## TREASURER'S REPORT FOR ANNUAL MEETING

FOR FISCAL YEAR ENDING JANUARY 14, 1913

## RECEIPTS

Cash balance, January 17, 1912 .....	\$ 9.37
Collections from new membership fees .....	29.00
Collections from annual dues .....	207.10
Collections from subscriptions and pledges .....	1,089.80
Total	<u>\$1,335.27</u>

## DISBURSEMENTS

**General Expense:**

Printing, stationery, clerical work .....	\$ 22.44
Postage .....	16.42
Exchange on checks .....	1.90
	<u>\$ 40.76</u>

**The Annual:**

Circulars, clerical work and postage .....	\$ 58.57
Printing and binding .....	286.93
	<u>\$ 345.50</u>

**Thayer Fund:**

Appropriation for 1913 .....	\$ 900.00
Cash balance, January 15, 1913	49.01
Total	<u>\$1,335.27</u>

Examined and found correct:

(Signed) WM. C. PHELPS,

*Auditor**Treasurer*

January 14, 1913.



## LIST OF MEMBERS

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CHARTER MEMBERS ARE INDICATED BY †

T. S. indicates Thayer School men; more complete information on preceding pages. C. S. D. indicates men of the Chandler Scientific School or Scientific Course of Dartmouth College. D. C. indicates Dartmouth College. N. H. C. indicates New Hampshire College A. and M. A.

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### HONORARY MEMBERS

Ernest F. Nichols, D.Sc.,  
Hanover, N. H.  
Henry L. Abbott, LL.D.,  
23 Berkeley St., Cambridge, Mass.  
Gustav J. Fieberger,  
U. S. Mil. Academy, West Point, N. Y.  
Prof. Robert Fletcher, Ph.D., Mil. Academy 1868,  
Hanover, N. H.  
William J. Tucker, D.D., LL.D., D. C. '61,  
Hanover, N. H.

---

Herman E. Abbott, T. S. '93,  
Passaic Water Co., Paterson, N. J.  
Arthur A. Adams, T. S. '95,  
78 Westminster St., Springfield, Mass.  
Frank E. Allard, M.D., C. S. D. '85,  
373 Commonwealth Ave., Boston, Mass.  
Henry W. Allen, C. S. D. '80,  
20 Market St., Manchester, N. H.  
D. H. Andrews, C. S. D. '69,  
47 Winter St., Boston, Mass.  
J. G. Andrews, T. S. '02,  
284 Franklin St., Newton, Mass.  
†John W. Ash, T. S. of '01,  
Chattanooga, Tenn.  
Henry H. Austin, C. S. D. '85,  
Wellesley College, Wellesley, Mass.

- †James L. Averill, T. S. '98,  
Hamilton & Chambers, 29 Broadway, New York City.
- Benjamin Ayer, T. S. '10,  
Monatiquot Rubber Works, So. Braintree, Mass.
- A. H. Ayers, T. S., '07,  
U. S. Reclamation Service, Great Falls, Mont.
- G. F. Baine, T. S. '09,  
Ferro Carril Oeste de Buenos Aires, Oficina del Subterraneo,  
Calle B. Mitre, 2961, Buenos Aires, Argentina.
- Harold Tower Baker  
Great Northern Paper Co., Box 193, Millinocket, Me.
- Ralph Edmund Baker  
Hollis French and Allen Hubbard, 88 Pearl St., Boston, Mass.
- William H. Balch, T. S. '98,  
Santo Domingo City, Dominican Republic.
- †George P. Bard, C. S. D. '89,  
Petroleum Iron Works Co., Sharon, Pa.
- †Percy L. Barker, T. S. '94,  
Jersey Shore, Pa.
- Arthur B. Barnes, T. S. '09,  
Barnaby Mfg. Co., Fall River, Mass.
- Samuel C. Bartlett, T. S. '08,  
Hastings Pavement Co., 25 Broad St., New York; or Hanover,  
N. H.
- Sidney C. Beane, T. S. '12,  
1421 Arch St., Philadelphia, Pa.
- Fred S. Berry, C. S. D. '88,  
Factoryville, Pa.
- J. J. Boynton, T. S. '12,  
762 West Ave., New York City.
- †Daniel E. Bradley, T. S. '85,  
Berlin, Conn.
- Delmont R. Bradley, T. S. '10,  
With Geo. F. Hardy, 309 Broadway, New York City.
- George F. Brooks, C. S. D. '81,  
Missoula, Mont.
- John P. Brooks, C. S. D. '85,  
Clarkson Institute, Potsdam, N. Y.
- Maurice F. Brown, T. S. '98,  
47 Winter St., Boston, Mass.
- Ralph H. Brown, T. S. '85,  
Eastern Bridge and Structural Co., Worcester, Mass.
- Arthur L. Buxton, T. S. '10,  
108 Dartmouth St., Springfield, Mass.
- Herbert H. Callman, D. C. '04,  
H. Howard & Co., 9 Mott Ave., Far Rockaway, N. Y.
- J. P. Canty, C. S. D. '90,

- B. & M. Ry., Fitchburg, Mass.  
 C. L. Carpenter, T. S. '89,  
 Andover, Mass., or Central Aguirre, Porto Rico.  
 Wesley G. Carr, C. S. D. '84,  
 P. O. Box 911, Pittsburg, Pa.  
 John A. Cassidy, T. S. '11,  
 931 Gates Ave., Brooklyn, N. Y.  
 †Edgar R. Cate, T. S. '01,  
 Union Bank Bldg., Pittsburg, Pa.  
 †Charles F. Chase, D. C. '89,  
 New Britain, Conn.  
 Edward S. Chase, D. C. '89,  
 Penn. R. R., Pier K, Jersey City, N. J.  
 †Amasa B. Clark, T. S. '90,  
 225 Fifth Ave., New York City, and Stephen Girard Bldg.,  
 Philadelphia.  
 Charles W. Coffin, C. S. D. '64,  
 173 Broadway, Bangor, Maine.  
 George R. Colson, T. S. '06,  
 Babylon, N. Y., So. Shore Traction Co., or N. Billerica, Mass.  
 Walter A. Conley, T. S. '06,  
 116 Essex Ave., Glen Ridge, N. J.  
 Frank G. Cook, T. S. '10,  
 N. P. R. R., Asst. Eng., Dakota Div., Jamestown, N. D.  
 R. E. Cox, C. S. D. '92,  
 Box 1020, Rawlins, Wyo.  
 Frederick H. Crafts, D. C. '75,  
 97 Glendale Park, Rochester, N. Y.  
 †Frank E. Cudworth, T. S. '02,  
 With Holbrook, Cabot & Rollins, 331 Madison Ave., New York  
 City.  
 J. T. Cunningham, C. S. D. '87,  
 30 Church St., New York City.  
 Frederic Danforth, C. S. D. '70,  
 29 Pleasant St., Gardiner, Me.  
 †Carroll W. Davis, T. S. '03,  
 Civ. Eng., Corning, Tehama Co., California.  
 †Edwin R. Davis, T. S. '96,  
 Florida E. Coast Ry., Marathon, Fla.  
 Fred R. Davis, T. S. '95,  
 810 Denckla Bldg., Philadelphia, Pa., or Goffstown, N. H.  
 Addison L. Day, C. S. D. '70,  
 Merchants Laclede Bldg., St. Louis, Mo.  
 Royal B. Doane, T. S. '03,  
 44 Union Hall St., Jamaica, L. I., N. Y.  
 Luther Nelson Doe  
 38 Dalton Ave., Pittsfield, Mass.  
 John F. Doonan, T. S. of '05.  
 Hotel Miller, Gt. Barrington, Mass., or Greenville, N. H.

- P. S. Dow, T. S. '11,  
Instructor Dartmouth College; also Knoxville, Tenn.
- Joseph N. Drew, C. S. D. '82,  
Sarasota, Florida.
- Arthur W. Dudley, C. S. D. '67,  
936 Elm St., Manchester, N. H.
- Benjamin H. Dudley, T. S. '10,  
6 Park St., Malone, N. Y.
- J. H. Dunlap, T. S. '08,  
311 Brown St., Iowa City, Iowa.
- Frank H. Eastman, D. C. '06,  
387 Undercliff Ave., Edgewater, N. J.
- Whitney H. Eastman, T. S. '11,  
Midland Linseed Oil Products Co., Edgewater, N. J.
- Andrew W. Edson, D. C. '78,  
Park Ave. and 59th St., New York City.
- Willard W. Eggleston, C. S. D. '91,  
Dept. Agri., Bureau Plant Indians, Washington, D. C.
- Arthur J. Ela, T. S. '08,  
U. S. Lighthouse Service, Ketchikan, Alaska.
- C. E. Ellsworth, D. C. '07,  
Wentworth, N. H.
- Prof. Charles F. Emerson, D. C. '68,  
Hanover, N. H.
- H. L. English, T. S. '12,  
130 W. 82d St., New York City.
- Shepley Wilson Evans,  
Room 805, Abbott Bldg., Broad & Race Sts., Philadelphia, Pa.
- †Leslie B. Farr, T. S. '03,  
2 Rector St., New York City.
- George Hobart Farrington,  
Republic Iron and Steel Co., Republic, Fayette Co., Pa.
- Hardy S. Ferguson, T. S. '91,  
Consult. Engr., 200 Fifth Ave., New York City.
- Harry W. Fitts, T. S. of '03,  
79 Pembroke St., Newton, Mass., or 110 State St., Boston.
- †William H. Ford, T. S. '95,  
1024 Arcade Bldg., Philadelphia, Pa.
- Alvah T. Fowler, T. S. '01,  
117 Center St., Concord, N. H.
- †Arthur W. French, T. S. '92,  
Worcester Polytechnic Inst., Worcester, Mass.
- Charles A. French, C. S. D. '93,  
City Engineer's Office, Laconia, N. H.
- John French, D. C. '86,  
59 Wall St., New York City.
- Jos. B. Gerould, M.D., C. S. D. '78,  
122 High St., No. Attleboro, Mass.

- Jasper M. Gibson, T. S. of '01,  
Boller, Hodge & Baird, 111 Broadway, New York City.
- Ray T. Gile, T. S. '79,  
61 Pleasant St., Littleton, N. H.
- C. M. Goddard, C. S. D. '77,  
141 Milk St., Boston, Mass.
- Charles F. Goodrich, T. S. '06,  
Am. Bridge Co., 30 Church St., New York.
- Robert R. Gould, T. S. '10,  
527 Tinton Ave., New York City.
- †Albert H. Greenwood, T. S. '00,  
39 Capen St., Hartford, Conn.
- James W. Hale, C. S. D. '81,  
281 High St., Newburyport, Mass.
- Arthur W. Hardy, T. S. '89,  
431 South Dearborn St., Chicago, Ill.
- Edward D. Hardy, T. S. '91,  
Filtration Plant, Washington, D. C.
- George F. Hardy, C. S. D. '88,  
309 Broadway, New York City.
- Arthur W. Hare, T. S. of '03,  
Care Norcross Bros. Co., Worcester, Mass.
- Reuben Hayes, T. S. '08,  
Southern Ry., 1300 Pennsylvania Ave., Washington, D. C.
- Allen Hazen, N. H. C. '85,  
42nd. St. Bldg., New York City.
- †Prof. John V. Hazen, T. S. '76,  
Hanover, N. H.
- Ralph W. Hazen, D. C. '08,  
U. S. Reclamation Service, Malta, Mont.
- William N. Hazen, T. S. '90,  
Am. Concrete Steel Co., Union Bldg., Newark, N. J.
- Charles W. Healey, C. S. D. '81,  
Exeter, N. H.
- Fred C. Heilge, C. S. D. '87,  
Care Westinghouse, Church, Kerr & Co., 10 Bridge St.,  
New York City.
- Edward W. Higbee, T. S. '11,  
7 W 65th St., New York City.
- David M. Hildreth, '87,  
131 12th St., N. E., Washington, D. C.
- Harry C. Hill, T. S. '03,  
Care Lane Construction Corporation, Meriden, Conn.
- George Hitchcock  
American Bridge Co., Elmira, N. Y. Res. 311 West Gray St.
- Samuel Hobbs,  
Box 265, Grafton, Mass.

- John B. Hodgdon, C. S. D. '85,  
2101 Wall St., Joplin, Mo.
- †Prof. Charles A. Holden, T. S. '01,  
Hanover, N. H.
- E. S. Holmes, C. S. D. '90,  
500 So. Clinton St., Chicago, Ill.
- William Hood, C. S. D. '67,  
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- †John J. Hopper, T. S. '85,  
215 West 125th St., New York City.
- Alfred A. Hormel, T. S. '12,  
41 M St., So. Boston, Mass.
- C. K. Hosford, T. S. '03,  
North Thetford, Vt.
- †Otis E. Hovey, T. S. '89,  
Care Am. Bridge Co., 30 Church St., New York City.
- Fred J. Hutchinson, C. S. D. '78,  
1037 River St., Hyde Park District, Boston, Mass.
- †George H. Hutchinson, T. S. '84,  
Northwest Fuel Co., St. Paul, Minn.
- Arthur B. Ilsley, T. S. '95,  
Southern Ry., 1300 Penn. Ave., Washington, D. C.
- James W. Ingalls, D. C. '10; T. S. '11,  
76 Baker St., Lynn, Mass.
- John Y. Jewett, T. S. '95,  
408 Commonwealth Building, Denver, Colo.
- Edward J. Johnson, T. S. of '97,  
219 Lindelle Bldg., Spokane, Wash.
- J. Howard Johnston, C. S. D. '70,  
Care Morgan, Hargis & Cie, 31 Boulevard Haussmann, Paris,  
France. Died, May 10, 1913, at Lima, Peru.
- Sydney E. Junkins, D. C. '87,  
10 Bridge St., New York City.
- Walter Stewart Kelly, C. S. D. '82,  
4 Marion Terrace, Brookline, Mass.
- B. A. Kimball, D. C. '54,  
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- W. F. Kimball, T. S. '12,  
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- W. R. Kimball, D. C. '07,  
454 No. Grove Ave., Oak Park, Ill.
- T. P. Kinsley, C. S. D. '66,  
185 Audubon Ave., New York City.
- Edward H. Kitfield, C. S. D. '81,  
201 Devonshire St., Boston, Mass.
- R. G. Knight, T. S. '09,  
P. O. Box 603, State College, Pa.

- C. H. Larimer, C. S. D. '85,  
53 State St., Boston, Mass.
- †Maurice J. Leahy, T. S. '03,  
Care of George F. Hardy, 309 Broadway, New York City.
- John H. Letteney, T. S. '96,  
101 Tremont St., Boston, Mass.
- E. A. Lincoln, T. S. '09,  
457 June St., Fall River, Mass.
- A. L. Livermore, D. C. '88,  
30 Broad St., New York City.
- C. E. Locke, T. S. '12,  
Turner Construction Co., 312 Prudential Bldg., Buffalo, N. Y.
- Samuel J. Lord, T. S. '96,  
City Engineer's Office, Manchester, N. H.
- C. A. Luck, D. C. '08,  
840 Ohio Bldg., Toledo, Ohio.
- John W. Mair, T. S. '04,  
100 W. Lincoln Ave., Mt. Vernon, N. Y.
- †John L. Mann, T. S. '98,  
Santo Domingo City, Dominican Republic.
- †William F. Mann, C. S. D. '90,  
1000 Boylston St., Boston, Mass.
- William H. G. Mann, C. S. D. '93,  
95 No. Main St., Penacook, N. H.
- Raymond R. Marsden, T. S. '09,  
Care H. S. Ferguson, 200 Fifth Ave., New York City.
- Francis B. Marsh, T. S. '02,  
Board of Water Supply, 165 Broadway, New York City.
- John J. Marshall, T. S. '85,  
Basin, Wyo.
- Geo. I. McAllister, C. S. D. '77,  
325 The Kennard, Manchester, N. H.
- Charles F. McCarthy, C. S. D., '88,  
Naugatuck, Conn.
- J. H. McElroy, D. C. '03,  
555 Myrtle Ave., Albany, N. Y.
- Samuel A. McCoy, T. S. '97,  
603 German Life Bldg., St. Paul, Minn.
- †George J. McIndoe, T. S. '96,  
Hastings Pavement Co., 25 Broad St., New York City.
- †John A. McNicol, T. S. '82,  
Care of Snare & Triest, Box 733, Havana, Cuba.
- George E. Melendy, C. S. D. '85,  
204 Center St., Orange N. J.
- Henry Melville, D. C. '79,  
45 Cedar St., New York City.
- Edmund Irving Mitchell,  
Am. Tel. & Tel. Co., Engr. Dept., 15 Dey St., New York City.

- Joseph F. Moore, D. C. '83,  
311 Nicolet Ave., Minneapolis, Minn.
- †Edwin J. Morrison, T. S. '93,  
Hastings Pavement Co., 25 Broad St., New York City.
- Harrie L. Muchemore, T. S. '06,  
%W. W. Anderson & Co., 117 Grant Ave., San Francisco, Cal.
- Frederick Herman Munkelt, T. S. '09,  
Am. Bridge Co., 30 Church St., New York City.
- Frank W. Newhall, T. S. '02,  
Republic, Fayette Co., Pa.
- †Charles H. Nichols, T. S. '88,  
45 East 42d St., New York City.
- George H. Nolan, T. S. '00,  
With Snare & Triest Co., Havana, Cuba, Box 733.
- Ralph W. Noyes, T. S. '11,  
With Stone & Webster Corporation, Boston, Mass.
- Luther S. Oakes, T. S. '00,  
801 Globe Bldg., Minneapolis, Minn.
- Robert E. Parker, T. S. '11,  
55 Walnut St., Reading, Mass.
- Frank N. Parsons, D. C. '74,  
Franklin, N. H.
- †Henry M. Paul, T. S. '75,  
The Ontario, No. 605, Washington, D. C.
- H. W. Pease,  
With George F. Hardy, 309 Broadway, New York City.
- John W. Pearson, C. S. D. '83,  
Room 467, South Station, Boston, Mass.
- R. H. Peck, T. S. '08,  
Palmerton, Penn.
- Geo. E. Pender, M.D., C. S. D. '93,  
83 Merrimac St., Portsmouth, N. H.
- Lew Knowlton Perley,  
Aberthaw Const. Co., Building at Gloucester, Mass. Perm.  
Laconia, N. H.
- Wesley W. Phelps, C. S. D. '81,  
343 So. Hill St., Los Angeles, Cal.
- †William C. Phelps, T. S. '95,  
Room 1026 A, Rapid Trans. Construc. Co., 165 Broadway,  
New York City.
- Harold E. Plumer, T. S. '03,  
With Turner Construction Co., 312 Prudential Bldg., Buffalo,  
N. Y.
- Henry G. Porter, D. C. '06,  
Care Hazen & Whipple, 103 Park Ave., New York City.
- John E. Porter, T. S. '03,  
6 Ashburton Pl., Yonkers, N. Y.



- John F. Pratt, C. S. D. '71,  
U. S. C. and G. Survey, Washington, D. C.
- +William H. Pratt, C. S. '74,  
50 Wabansia Ave., Chicago, Ill.
- T. R. Remsen, T. S. of '03,  
With George F. Hardy, 309 Broadway, New York City.
- Frank J. Reynolds, C. S. D '89,  
Care Gen. Elec. Co., 30 Church St., New York City.
- E. T. Richards, T. S. '09,  
22 Mason St., Pawtucket, R. I.
- C. P. Richardson, T. S. '09,  
235 W. 61st Place, Chicago, Ill.
- Harold S. Richmond, T. S. '03,  
Hartsdale, N. Y., or Northfield, Vt.
- †Wilfred C. Risley, T. S. '01,  
Box 2, Sydney, Nova Scotia, Canada.
- Fletcher Rogers, T. S. '11,  
Hastings Pavement Co., New York. Res. Cresskill, N. J.
- H. L. Ropes, T. S. '04,  
154 Winslow St., Watertown, N. Y.
- †Warren F. Rugg, T. S. '02,  
767 Elm St., Peekskill, N. Y.
- Arthur V. Ruggles, D. C. '02,  
3068 Perry Ave., New York City.
- Edward F. Ruggles, C. S. D. '94,  
Md. Geol. Survey, N. Howard St., Baltimore, Md.
- Sydney Lee Ruggles, T. S. '09,  
Hanover, N. H.
- Verney W. Russell, T. S. '07,  
Shoshone Dam, U. S. Reclamation Service, Cody, Wyo.
- Alva B. Rutherford, D. C. '08,  
840 Ohio Bldg., Toledo, Ohio.
- Frank B. Sanborn, T. S. '89,  
Tufts College, Mass.
- †Hiram N. Savage, T. S. '90,  
U. S. Reclamation Service, Helena, Mont., or  
Care of Chief Engr., U. S. Recl. Service, Washington, D. C.
- Frederick E. Schilling, D. C. '08,  
Turner Construction Co., 11 Broadway, New York City.
- Horace H. Sears, D. C. '00,  
City Engr., Redwood City, San Mateo Co., California.
- W. T. Shaw, T. S. '06,  
Hill, N. H. Perm. Middleboro, Mass.
- F. E. Shedd, C. S. D. '80,  
93 Federal St., Boston, Mass.
- Ralph A. Sherwin, T. S., 1911,  
16 Summit St., Orange, Mass.

- William M. Silleck, D. C. '07,  
Geo. H. Fuller Co., 111 Broadway, New York City.
- Albert Smith, T. S. '03,  
Purdue Univ., Lafayette, Ind., 1022 Seventh St., West.
- Arthur W. Smith, N. H. C. '95,  
1008 Oakland Ave., Ann Arbor, Mich.
- Lyndon A. Smith, D. C. '80,  
Capitol, St. Paul, Minn.
- L. B. Smith, T. S. '06,  
5447 Stanton Ave., Pittsburg, Pa.
- †Jonathan P. Snow, T. S. '75,  
Consulting Engr., 18 Tremont St., Boston, Mass.
- William P. Snow, C. S. D. '81,  
93 Federal St., Boston, Mass.
- Chas. R. Spalding, C. S. D. '88,  
215 Dearborn St., Chicago, Ill.
- George F. Sparhawk, T. S. '91,  
American Bridge Co., Ambridge, Penn.
- Parker Spofford, C. S. D. '65,  
Bucksport, Me.
- John F. Springfield, T. S. '86,  
Rochester, N. H.
- George M. Stafford, C. S. D. '81,  
804 Burton Ave., Helena, Mont.
- William E. Stanley, C. S. D. '91,  
31 Milk St., Boston, Mass.
- Fred C. Stanton, T. S. '03,  
Asst. Engr. Atlantic Div. Panama Canal, Cristobal, C. Z.
- Everett M. Stevens, T. S. '02,  
Pres. Nashua Granite Co., 254 Main St., Nashua, N. H.
- Samuel S. Stevens,  
94 Hicks St., Brooklyn, N. Y.
- P. W. Stickney, T. S. '09,  
N. P. Ry., Fargo, No. Dakota.
- †George C. Stoddard, C. S. '81,  
215 West 125th St., New York City.
- Arthur W. Stone, T. S. '96,  
Care of William Bradley & Son, Long Id. City, or  
Hartford, Vt.
- Edw. M. Stone, T. S. '94,  
49 Pearl St., Hartford, Conn.
- Ried Herrick Stone,  
Santa Marta Ry., Santa Marta, Colombia.
- Jas. H. Stone, T. S. '09,  
Concord, N. H., Route No. 2.
- Franklin H. Stowell, T. S. '05,  
Chicago, Ill., 1200 Tribune Bldg.

- Chester A. Studwell, T. S. of '03,  
Village Eng'r, Port Chester, N. Y.
- Henry A. Symonds, T. S. '94,  
174 Lexington St., Waverly, Mass.
- Hugh B. Tabor, T. S. '97,  
544 Bartolome Mitre, Buenos Aires, Argentine, S. A.
- Crosby Tappan, T. S. '05,  
Glen Apartments, Chambersburg, Pa.
- P. L. Thompson, T. S. '09,  
Care Hastings Pav. Co., 25 Broad St., New York City.
- Arthur C. Tozzer, T. S. '03,  
Care Turner Const. Co., 11 Broadway, New York City.
- Frank H. Trow, T. S. '95,  
Chief Engr. Winston & Co., Ashokan Reservoir. Browns Sta-  
tion, N. Y.
- Albert L. True, T. S. '02,  
Lancaster, Mass. (Missing since March, 1906.)
- Lucius E. Varney, D. C. '99,  
149 Broadway, New York City.
- Geo. W. Wales, C. S. D. '86,  
Manchester, N. H.
- John Walker, T. S. '03,  
Union Pacific Ry., 522 West 21st St., Cheyenne, Wyo.
- Sidney G. Walker, T. S. '93,  
815 Grosvenor Bldg., Providence, R. I.
- H. A. Ward, T. S. '10,  
312 Prudential Bldg., Buffalo, N. Y.
- Edward B. Wardle, T. S. '00,  
Engr. for George F. Hardy, 309 Broadway, New York City.
- †Herbert L. Watson, T. S. '00,  
201 Ellsworth Ave., New Haven, Conn.
- Leslie Wead, C. S. D. '72,  
35 Congress St., Boston, Mass.
- F. W. Welch, T. S. '08,  
Spirit Lake, Idaho.
- Harry A. Wells, T. S. '11,  
Hanover, N. H.
- †Benjamin F. Welton, T. S. of '95,  
Commissioner of Accounts, 51 Chambers St., New York City.
- Fred W. Wentworth, C. S. D. '87,  
Citizens' Trust Bldg., Paterson, N. J.
- Russell A. Wentworth, C. S. D. '79,  
100 Ross St., Batavia, N. Y.
- Fred S. Weston, T. S. '09,  
Jacksonville Terminal Co., Jacksonville, Fla.

- F. L. Wheaton, T. S. '86,  
D. L. & W. Ry., Scranton, Pa., or  
85 So. Arlington Ave., E. Orange, N. J.
- Bertrand T. Wheeler, C. S. D. '84,  
Eng'r Maine Cent. Ry., Portland, Me.
- Earl F. Whitaker, T. S. of '02,  
7815 4th Ave., Brooklyn, N. Y.
- F. S. Whitcomb, T. S. '12,  
132 Sumac St., Wissahickan, Pa.
- Thomas T. Whittier, T. S. '00,  
Care of George F. Hardy, Mill Engr., 309 Broadway, New  
York City.
- †Philip H. Winchester, T. S. '00,  
303 Ten Eyck St., Watertown, N. Y.
- W. C. Winkley, T. S. '09,  
7 W. Concord St., Dover, N. H.
- Morton O. Withey, T. S. '05,  
University of Wisconsin, Madison, Wis.
- George P. Wood, T. S. '90,  
217 Walnut St., Peekskill, N. Y.
- Carl B. Worthen, T. S. '04,  
Supposed to be in Hawaii.
- R. T. Young, T. S. '12,  
Littleton, N. H.

## DECEASED MEMBERS

- Mart A. Beal, C. S. D., 1880. Died March 12, 1910.
- Richard Hazen, T. S., 1909. Died August 13, 1911.
- Schilelr Hosford, D. C., 1886. Died April 5, 1912.
- George I. Leland, C. S. D., 1884. Died May 16, 1912.
- Robert H. Pearson, T. S., of 1908. Died January 4, 1912.
- William H. Puffer, T. S., 1892. Died March 17, 1912.
- Robert L. Read, C. S. D., 1864. Died June 29, 1912.
- Ralph S. Soper, T. S., 1904. Died June 16, 1910.
- Charles H. Treat, C. S. D., 1865. Died May 31, 1910.
- Eliphalet B. Gage, C. S. D., 1858. Died March, 1913.
- John R. Eastman, Ph. D., C. S. D.; 1862. Died Sept. 26, 1913.
- J. Howard Johnston, M. S., C. S. D. '70. Died May 10, 1913, at  
Lima, Peru.

## ORGANIZATION

The Thayer Society of Engineers of Dartmouth College, was instituted at a meeting held in New York City, Dec., 1903, the outcome of several informal assemblies of former students of the THAYER SCHOOL OF CIVIL ENGINEERING and the Chandler School of Science and Arts of Dartmouth College, whose collegiate, social, and professional interests are closely interwoven, and who were concerned for the welfare and needs of the Engineering Department of the College.

The support of the Executive Committee co-operating with the Board of Overseers of the School, in urging the needs of the THAYER SCHOOL upon the attention of the Trustees of the College, resulted in securing the present habitat adequate for many coming years, and on a site worthy of the history and accomplishment of the Institution.

The annual meetings, held on the evening preceding the annual meeting of the Am. Soc. of Civil Engineers (and thus convenient for such as are members of both Societies) have always proved to be pleasant reunions of old friends and classmates, and opportunities for the younger men to meet older members and extend their range of acquaintance.

The annual dues are merely nominal, so as not to be burdensome; and the fact that the Thayer Society has undertaken to meet the cost of publication of THE ANNUAL, which is sent to all Thayer School men, should induce all to participate in this, at least to the extent of holding membership in the Society.

## CONSTITUTION

### 1. NAME AND PURPOSE

1. The name of this voluntary association shall be Thayer Society of Engineers, of Dartmouth College.

2. Its object is to further the interests of the Thayer School of Civil Engineering; to promote social intercourse among its members, and to keep them informed as concerns the work and needs of said school.

### II. MEMBERSHIP

1. There shall be eligible for membership in this Society, (a) former students in the Thayer School of Civil Engineering, (b) graduates of the Chandler Scientific Department of Dartmouth College, who graduated prior to the year 1894, and (c) officers of, or former students in any or all departments of Dartmouth College, not described in (a) or (b), whose eligibility shall have been certified by an affirmative vote of the Executive Committee taken previous to any action on the part of that Committee, under Section 4 of Article II of this Constitution, and affecting the person whose eligibility it is sought to determine under this clause (c).

2. A person may become an honorary member of the Society by a unanimous vote of the Advisory Board and Executive Committee. For the purposes of such a vote, said bodies may act separately or as a unit. Letter ballots may be sent to the Secretary.

3. Members and Honorary Members shall be eligible for election to the Advisory Board. Members only shall be eligible for election to the Executive Committee.

4. The Executive Committee shall vote on the admission of such persons as shall have been proposed by a member or members of the Society. The name of the person proposed, together with that of his proposer, shall be entered in a book kept for that purpose, before the Executive Committee proceeds to vote on the admission of that person.

5. Notice of election may be given either to the person elected or to his proposer. If the payment of the membership fee is not made within three months of the date of notice of election, the election shall be void.

6. The membership fee shall be one dollar.

7. Annual dues shall be one dollar, payable in advance.

8. Honorary members shall have all the rights and privileges of members which are not inconsistent with Article II of this Constitution.

### III. EXECUTIVE COMMITTEE

1. The conduct of the Society's affairs shall be confided to a committee of five of its members, to be known as the Executive Committee.

2. The Executive Committee shall have power to fill any vacancy in their number until the next Annual Meeting of the Society.

3. The Executive Committee shall have the power to elect, annually, from their number a President, a Secretary, and a Treasurer, of the Society; they shall also have the power to remove and replace the same. Members of the Executive Committee shall hold office until their successors are elected.

4. The Executive Committee shall have power to make rules for their own government. An affirmative vote of a majority of all the members of the Executive Committee shall be necessary to amend the rules made by that committee.

5. The Executive Committee shall have power to admit members by ballot, one adverse ballot excluding. The vote upon the admission of a proposed member may be reconsidered and a second ballot taken at the same meeting at which such vote was taken, upon motion of any member of the committee. If such a vote is to be reconsidered at a later meeting, ten days' notice must be given to each member of the committee.

6. The Executive Committee shall have power to call special meetings of the Society.

### IV. OFFICERS

1. The President shall preside at all meetings of the Society and of the Executive Committee. In his absence, a presiding officer may be elected.

2. The Treasurer shall keep the Society's accounts, receive and disburse moneys, and make a report, annually, to the Society.

3. The Secretary shall keep a record of the meetings of the Society and of the Executive Committee; also a record of the names and addresses of members.

4. The officers shall have such other powers and duties as may be prescribed by the Constitution or by the Executive Committee.

#### V. ADVISORY BOARD

1. An Advisory Board of seven members, three of whom shall be elected at each annual meeting, after the first election (at which six shall be elected in classes of three), shall have the power to indicate lines of work or investigation to the Executive Committee, which shall adopt and pursue any definite policy set forth in a written statement signed by not less than five members of the Advisory Board. The Director of the Thayer School of Civil Engineering shall be a member, *ex-officio*, of the Advisory Board.

2. No person shall be at one time a member of the Advisory Board and of the Executive Committee.

3. No member residing in the City of New York or within fifty miles of the same shall be eligible for membership in the Advisory Board.

4. The organization of the Advisory Board shall be wholly within the power of that Board.

#### VI. ANNUAL MEETING

1. The Annual Meeting of the Society shall be held in the month of January in the City of New York; the first Annual Meeting shall be held in the month of January, 1905.

2. There shall be mailed to each member, at least ten days before the Annual Meeting, a notice of the meeting, together with copies of all lists of nominations received by the Executive Committee prior to the fifteenth day of December.

3. Any member residing at a distance of more than fifty miles from the City of New York may vote by letter ballot.

4. As soon as the Annual Meeting is organized, the presiding officer shall appoint three Tellers to receive and canvass the vote.



5. The Secretary shall turn over to the Tellers all letter ballots received.

6. A voter of a letter ballot, if present at the Annual Meeting, may withdraw his ballot at any time previous to the commencement of voting, on the part of such members as are present; he may then vote with the members present.

7. The vote for members of the Advisory Board and of the Executive Committee shall be by ballot. On the ballots the names of those persons voted for to become members of the Advisory Board shall be separated from the names of those voted for to become members of the Executive Committee. A ballot may contain names not included in any list of nominations. All names voted by a member shall be on one ballot. A ballot containing names in excess of the number of members to be elected shall be rejected by the Tellers.

8. As soon as the canvass is completed, the Tellers shall report the result of the balloting to the presiding officer, who, thereupon, shall declare the vote.

9. Those persons receiving the five highest number of votes cast for members of the Executive Committee shall be declared elected to membership in that Committee. Membership in the Advisory Board shall be determined and declared in a similar manner.

10. In case of a tie vote, the members present, by a majority vote shall choose one of the candidates, who by reason of the tie vote failed of election on the first ballot.

11. No voting by proxy shall be permitted.

12. Twenty members shall constitute a quorum at any meeting of the Society. If no quorum be present, the presiding officer shall adjourn the meeting to some other day.

## VII. AMENDMENTS

The Constitution of this Society may be amended at any Annual Meeting or at any Special Meeting called for that purpose, by a two-thirds vote in the affirmative, a quorum being present and voting.

## NAMES AND ADDRESSES OF ALUMNI

MEN OF DARTMOUTH IN PURSUITS MORE OR LESS RELATED TO ENGINEERING,—MANUFACTURE, ADMINISTRATION, RAILROADS, ETC.

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### ARRANGED IN CHRONOLOGICAL ORDER

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CHANDLER \*SCIENTIFIC DEPARTMENT OF DARTMOUTH COLLEGE. Unless otherwise indicated, all alumni up to and including the year 1870 are graduates of the Chandler Scientific School, as it was then known. After 1870 such graduates are indicated by C. S. D., up to 1894.

C. S., indicates Chandler Scientific Course of the College after 1894.

D. C., Dartmouth College, Academic Course.

N. H. C. New Hampshire College of Agriculture and Mechanic Arts.

N. U., Norwich University.

M. C., Middlebury College.

†Indicates Member of the Thayer Society of Engineers of Dartmouth College.

\*Indicates that reply was made to the circular or the card sent out by the Secretary of the Thayer Society.

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\*†Benjamin A. Kimball '54, B.S., A.M. Manufacturer and Engineer Railroad Manager. Pres. C. & M. R.R. Pres. Mechanics Nat. Bank and other corporations. Memb. Amer. Social Science Assoc. Active member New Hampshire Historical Society. Trustee Dartmouth College. Concord, N. H. Class Secretary and Treasurer.

Orrin F. Brooks '55, B.S. Teacher (retired). 200 Belmont St., Brockton, Mass.

Joseph S. Howe '55. Civil Engineer. Member both branches of Massachusetts Legislature. Town Clerk, Treas., and Collector since 1877. Methuen, Mass.

Simon R. Marston '55. Civil Engineer (retired). 1st Lieutenant 10th N. H. Vols. Maj. and Addl. Paymr. U. S. A. Brev. Lieut. Col. U. S. Vols. 168 State St., Portsmouth, N. H.

- Albert Wood '56, B.S., M.D. Physician. Surgeon U. S. A., '62-'65. Pres. Worc. City Hosp. V. Pres. Memorial Hospital. Director and Med. Director State Mutual Life Assur. Co. Memb. National, State, and Dist. Med. Socs. Treas. Worc. Insane Hos. and Worc. Insant Asylum. Director Worc. Gas Light Co. 71 Pleasant St., Worcester, Mass.
- Frank John Smith '57. Druggist and Bookseller. Ypsilanti, Mich.
- \*Cyrus S. Wright '57, B.S. President of the firm of N. Gray & Co., Inc., Funeral Directors. 2198 Geary St., San Francisco, Cal.
- Harvey J. Chamberlin, C.S.D. '58, B.S., LL.B. Missionary, Lawyer, Merchant, Banker. 500 W. Concho Ave., San Angelo, Texas.
- William Martin Chase, C.S.D. '58, B.S., M.A., LL.D. (1898). Lawyer, Justice of Supreme Court of New Hampshire. 93 School St., Concord, N. H.
- \*†Eliphalet B. Gage '58, B.S. Director Prescott Nat. Bank, also Santa Fe, Prescott and Phoenix R. R. Life Memb. Am. Inst. M. E., and Am. Geol. Soc. Hermosa Beach, Cal. Deceased, Mar., '13.
- Charles W. Hayes '58, B.S. Farmer. Engineer. 61 Belknap St., Dover, N. H.
- Joseph E. Marsh '58, B.S. Real Estate—Robert Marsh & Co., Res. 1201 3d Ave., Los Angeles, Cal.
- John E. Sinclair '58, B.S., A.M., Ph.D. Professor Emeritus Worcester Polytechnic Inst. Retired in 1908 after 39 years' service at the Polytech. Inst., and 50 years of continuous teaching. 4 North Ave., Worcester, Mass.
- John M. Bancroft, C.S.D. '59, B.S., Manufacturer (retired). Served three years in 4th Mich. Infantry, Sergt. and 1st Lieut.; 1884-1911. Secretary and Treasurer, Hammond Typewriter Co., 40 Beach St., Bloomfield, N. J.
- Lord J. Butler '59, B.S. Planter. Civil Engineer. Port Gibson, Miss.
- Samuel K. Hamilton, C. S. D. '59, B.S., M.S. Lawyer. Pres. Middlesex Bar Assoc. Memb. Bar Assoc., City of Boston and vicinity, Mass. State Bar Assoc. U. S. Bar Assoc. 31 Milk St., Boston, Mass.
- \*George H. Strong '59, B.S. Patent Attorney. 911 Crocker Bldg., San Francisco, Cal. Home, 271 Lee St., Oakland.
- Albert S. Bickmore, D.C. '60, A.B., B.Sc., A.M., Ph.D., LL.D. American Museum of Natural History, New York City, Professor Emeritus, Dept. of Public Instruction.

- Lycortas B. Hall '61, B.S., M.S., M.D. Physician. Specialist in Diseases of the Eye. Membr. Northern Med. Soc., also County and State Med. Socs. 139 N. 15th St., Philadelphia, Pa.
- \*Edward D. Redington, D.C. '61, A.B., A.M. Major U. S. Volunteers. Trustee Dart. Coll two terms. Jury Commissioner of Cook Co., Ill., '97 to '07. Life Ins., 1905-1908. Harris Trust Bldg., Chicago. Permanent address: 512 Lake St., Evanston, Illinois.
- †William J. Tucker, D. C. '61, A.B., A.M., D.D., LL.D. Congregational Minister. Pastor Franklin St. Ch., Manchester, N. H. Madison Square Church, New York. Prof. Andover Theological Sem. Founder Andover House (social settlement), Boston. Editor Andover Rev. Author: From Liberty to Unity, 1892; The Making and Unmaking of the Preacher, 1899. Pres. Dart. College, 1893-1909. Hanover, N. H.
- William H. Baldwin '62, C.S.D., B.S., M.S. Civil Engineer. Captain New York Vol. Engr. Deputy City Engr., Yonkers, N. Y. Engr. Yonkers Water Works. Memb. Amer. Soc. C. E. Yonkers, N. Y.
- \*John R. Eastman '62, B.S., M.S., A.M., Ph.D. Professor of Mathematics, U. S. Navy with rank of Rear Admiral U. S. N. (retired). Astronomer U. S. Naval Observatory, Washington, D. C., 1865-'98. Member of numerous scientific societies and author of many professional papers. Trustee Dart. College, 1900-1912. Andover, N. H. Memb. and first President Washington Acad. of Sci., A. A. A. S., Astron. and Astrophys. Soc. of Am. Philosophical Soc. of Wash., D. C. Deceased Sept., '13.
- Stephen Rand, D. C. '63, A.B. Asst. Engr. U. S. N., Asst. Pay Master, Past Asst. Pay Master, Pay Master, Pay Inspector (retired) with rank of Read Admiral, 1906. Address: Navy Department, Washington, D. C.
- Charles W. Spalding, C.S.D. '63, B.S., A.M. Pres. Spalding Land Co. Sec. Land Dept., C. B. & Q. Ry. Manager of an Investment Co. Wholesale coal dealer and banker, Chicago. Board of Trustees, Dartmouth College (1892-1896). 1851 Byron St., Chicago, Ill.
- \*†Charles W. Coffin '64, B.S. Merchant, also director or President of several Mfg., Mining, and Lumbering Corporations. V. Pres. Bangor Board of Trade. 173 Broadway, Bangor, Me.
- James W. Perkins '64, B.S. Teacher. Served in 7th Rhode Island Cavalry, 60th Mass. Vols. and 17th N. H. Vols. Real Estate. Memb. Kansas City Humane Soc., Congl. Union, Associated Charities, Civic League, and the G. A. R. Sec. and Treas. Children's Home Soc. of Kan. City Dist. 1108 Forest Ave., Kansas City, Mo

Elliot Whipple D.C. '64, A.B., A.M. Professor of Civics and Economics, Wheaton, Ill.

Charles C. Arms, D. C. '65, A.B., A.M., M.D. U. S. Volunteers. Professor of Anatomy Univ. of Wooster, Cleveland, O.

John E. Johnson, C. S. D. '65, B.S., D. C. '66, A.B. 1st Lieut. Co. K., N. H. H. A., in Civil War. Captain and A. Q. M. U. S. Vols. Clergyman. Supt. Social Service Soc. 1223 S. 58th St., Philadelphia, Pa.

Arthur C. Morse '65, B.S. Engineer. 86 Summer St., Malden, Mass.

Charles H. Sargent, C. S. D. '65, B.S. Served in 8th Massachusetts Volunteers 1864. Extensive railroad location and construction in the western and southern states. Drainage and irrigation work. Has been disabled from active work for several years. 3222 U. St., Lincoln, Neb.

\*†Parker Spofford '65, B.S. Civil Engineer. Engaged in railroad engineering in Iowa and Missouri '65 to '72. Since then engaged at intervals upon different railroads in Maine as Engr. Memb. of Board of Railroad Commissioners for 9 years. 1900-1909. Bucksport, Me.

Henry C. Ide, D. C. '66, A.B., A.M., LL.D. Lawyer. U. S. Commissioner to Samoa. Chief Justice of Samoa. Memb. Philippine Commission, Secretary of Finance and Justice for Philippine Islands, Vice Gov. and Gov. Gen. for the same. St. Johnsbury, Vt. Now Envoy Extraordinary and Minister Plenipotentiary, Madrid, Spain. Memb. Vt. Bar Assoc. and Philippine Bar Assoc.

\*†Thomas P. Kinsley '66, B.S., M. A. S. C. E. Civil Engr. and Contractor. 185 Audobon Ave., New York City.

\*Horace E. Marion '66, B.S., M.D. Memb. E. W. Kinsley Post 113, Dept. Mass., G. A. R. Maj. and Brigade Surgeon (Lieut. Col.), 1st Brigade M. V. M. 1882, Berlin and Vienna '78 and '79. Memb. Am. Med. Asso. and Mass. Med. Soc. Ex-Pres. Middlesex Co. Dist. Med. Soc. Med. Inspector of Schools. 6 Sparhawk St., Boston, Mass. Sons Am. Rev. Perm. Memb. Grand Lodge Mass. A. F. & A. M.

\*Doan B. Colcord '67, B.S., M.D. Phys. and Surg. Bellevue Hosp. Med. Coll., 1875. Consulting Engr. in charge of constructing Mount Hood Railroad. Asst. Engr. O. S. L. R. R. (1905-1908). Consulting Engr. Colorado Fuel Co. Lunts, Oregon. Perm. address: 60th Ave. and 82d St., Portland, Ore. Portland State Med. Soc., Leane Co., Ore., Med. Soc. Author of "Colcord Genealogy," 1908.

- Arthur W. Dudley '67, B.S. Engineer. Many years engaged in Railroad Engineering, C. B. & Q. R. R.; N. Y., N. H. & H. R. R., formerly Engr. J. T. & Key West R. R. General practice, with Hydraulics as a specialty. 936 Elm St., Manchester, N. H.
- \*†William Hood '67, B.S. Chief Engr. Southern Pacific Company. Memb. Am. Soc. C. E., Memb. Am. Ry. Eng. and Maintenance of Way Assoc. 1136 Flood Bldg., San Francisco, Cal.
- William A. Ketcham, D. C. '67, A.B., LL.D. Lawyer. Capt. 13th Ind. Vols. Atty Gen. state of Ind. Dept. Commander, G. A. R., Dept. of Ind. Memb. Indianapolis Lit. Club. Pres. Ind. Bar Assoc. 1007-8 Odd Fellows Bldg., Indianapolis, Ind. Home address: 4242 N. Illinois St.
- George B. Lane '67, B.S. Served in 11th and 15th New Hampshire Infantry. Teacher. Supt. Pub. Instruction, Nebraska. Mayor Olympia, Wash. Retired. 812 Queen Anne Ave., Seattle, Wash.
- John J. McDavitt, D. C. '67, A.B. Lawyer. Pompton Lakes, N. J. Sidney L. Rice, C.S.D. '67, B.S. Publisher. Served in Civil War. 133 E. 3d St., Cincinnati, O.
- Charles H. Chandler, D. C. '68, A.B., A.M. Professor Mathematics and Physics. Professor emeritus since 1906. City Engr., Ripon, Wis. Memb. numerous scientific societies. Lately of Ripon College, Ripon, Wis. Now, New Ipswich, N. H.; working on town history.
- \*†Charles F. Emerson, D. C. '68, A.B., A.M. Professor Natural Philosophy and Dean of Dart. College. Life Memb. of A. A. A. S. Hanover, N. H.
- Richard E. Ela '68, B. S. Engineer. 2002 N. 6th St., Kansas City, Mo.
- \*†Robert Fletcher, U. S. Military Academy '68, Ph.D. Director and Professor of Civil Engineering, THAYER SCHOOL OF C. E. Memb. Am. Soc. C. E., Memb. and past Pres. Soc. for Prom. Eng. Education. Fellow A. A. A. S. Natl. Geog. Soc. Memb. N. H. State Board of Health. Hanover, N. H.
- †William W. Patterson, C. S. D. '68, B.S. Oakland, Cal. Box 333.
- †Colin R. Wise, D. C. '68, A.B., A.M. Civil Engineer. Memb. A. S. C. E. 34 Bloomfield Ave., Passaic, N. J.
- Henry A. Wise D. C. '68, A.B., A.M. Engineer. 3235 Wabash Ave., Kansas City, Mo.
- \*†David H. Andrews '69, B.S., C.E., M.A. Memb. A. S. C. E. Pres. Boston Bridge Works, Inc. Pres. Direct Turbine Co., 47 Winter St., Boston, Mass. Home 38 Lake Ave., Newton Center.

James B. Brooks, D. C. '69, A.B., A.M., LL.B., D.C.L. Lawyer. Captain 4th Vermont Vols. Dean Coll. of Law, Syracuse Univ. Memb. N. Y. State Bar Asso., Amer. Bar Asso. 1013 East Adams St., Syracuse, N. Y.

Charles E. Merrill '69, B.S. President Charles E. Merrill Co., publishers educational text books. 44 E. 23d St., New York City.

Lucius G. Shepard '69, B.S. Contracting Engineer. 712 Garfield Ave., Kansas City, Mo.

Dwinel F. Thompson '69, B.S. Professor Rensselaer Polytechnic Institute, 79 Fifth St., Troy, N. Y.

Daniel T. Wheaton, D. C. '69, A. B. Assistant Engineer on Great Northern and G. M. & St. Paul Rys. Civil Engr. and County Surveyor. Morris, Minn.

Lewis Boss, D. C. '70, A.B., A.M., LL.D., ScD. Astronomer. Director Dudley Observatory, Albany, N. Y. Director of Department of Meridian Astrometry of the Carnegie Institution. (Address: Albany, N. Y.) Editor of Astronomical Journal Memb. various scientific societies. Albany, N. Y.

\*†Frederic Danforth '70, B.S. Consulting Engr. M. A. S. C. E. Formerly Railway Commissioner, Chief Engr. P. & R. Ry. and other Railroads. 29 Pleasant St., Gardiner, Me.

\*†Addison L. Day '70, B.S. Manager Sheet Metal Department, Hoyt Metal Co., Merchants Leclde Bldg., St. Louis, Mo.

George S. Edgell, D. C. '70, A.B., A.M. Banker. 192 Broadway, New York City.

Charles E. Emerson '70 B.S. 5 Fletcher St., Nashua, N. H.

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## INSPECTION TRIP TO NEW YORK

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### REPORT TO PRESIDENT NICHOLS BY DIRECTOR FLETCHER

At the earnest request of the majority of the first year class, Prof. Fletcher consented to accompany them to New York to inspect engineering works during the three days immediately preceding the Dartmouth-Princeton football game. Through the generous interest and coöperation of graduates in New York, a very attractive program was arranged by them, the fulfillment of which was accomplished without a break and with much instruction and profit to all.

The party, numbering 19, went to New York on Tuesday, Oct. 21. On the following morning the rendezvous was at the Grand Union hotel, where Mr. O. E. Hovey ('89), Asst. Ch. Engr. Am. Bridge Co.; Mr. F. E. Cudworth ('02), Engr. for Holbrook, Cabot & Rollins, and Mr. A. C. Tozzer ('03), Gen. Supt. of the Turner Construction Co., greeted them. Mr. Cudworth distributed two blue-print maps of parts of Manhattan, Queens, Brooklyn and Richmond Boroughs, giving plans and profiles of the new aqueduct tunnels beneath the cities and with indications of the points to be visited. The first objective was the large ten-story concrete building of the Loose-Wiles Biscuit Co., in Long Island City. Mr. Tozzer conducted the party over the structure from the basement to the monitors on the roof, where pouring of concrete was in progress. The various stages in the construction of such a building, including erection of the forms, placing of reinforcement, handling the materials, etc., were seen to the best advantage.

The party was then invited by their hosts to a generous lunch at the café of the Murray Hill hotel; after which all went by elevated R. R. to foot of 100th Street, where a tug boat was in waiting to take it to Ward's Island. Here was shown in different stages of progress some deep and difficult foundation work for the west abutment of the designed 975 foot steel arch to span Hell Gate

channel with a clearance of 165 feet above tide level. The great area of abutment is supported rather uniquely on clusters of piers sunk by pneumatic process and all united by a concrete platform twelve feet thick. The towering row of lofty piers for the northern approach of the New York Connecting Railway, was viewed along its entire extent across Ward's Island, each pier diminishing from about 150 feet in height, and showing beautiful examples of magnificent concrete construction. Crossing East River, the east abutment was viewed, partly erected and faced with massive smooth-cut granite. The engineers in the contractor's office explained the drawings and proposed method of erecting the great arch. The party then walked eastward, viewing the entire line of approach piers, street arches and retaining walls, to the point where trolley-cars were taken to Manhattan.

On Thursday morning the rendezvous was at Cedar St. and Broadway, where Mr. Cudworth and Mr. L. B. Farr ('03), President of Harlem Contracting Co., met the party which proceeded to inspect the works for the foundation of the new Equitable Life Assurance Co.'s building, by courtesy of the contractor, Mr. John F. O'Rourke, and his son, who conducted the party. Here was a rare opportunity to view operations by process of pneumatic caissons, and the top of the surrounding wall of joined rectangular caissons sunk 80 feet through quicksand to rock. By arrangement made by Mr. Farr with the F. L. Cranford Co., contractors, the party was conducted by Superintendent Means to inspect the tunnelling operations for the new rapid transit subway under Church Street and St. Paul churchyard. Pile driving in very restricted spaces, the methods of supporting the elevated railway in the street above and then underpinning and reconstructing or extending the column foundations, the excavations in soft ground at the heading, and the method of placing the cast-iron tube plates of the completed tunnel section, these and other stages of the work were all seen, after much stooping, stumbling, crawling, and bumping of heads.

By invitation of our hosts, the party, with Mr. Cudworth and Mr. Farr, again had a generous lunch all together at the Murray Hill hotel, being joined by Mr. E. J. Morrison ('93), President of the Hastings Pavement Co., and Mr. P. L. Thompson ('09), one of its superintendents. All then proceeded by train to Hastings-on-the-Hudson, where Mr. Morrison and his aids gave personal



conduct through the works for the manufacture of compressed asphalt paving blocks, from a mixture of crushed trap-rock, limestone dust, and refined Trinidad asphalt. Each block is compressed under pressure of 240 tons, or 4 tons per square inch, and has great density, combined with elasticity, while it is impervious to water under severest tests. Its wearing qualities are remarkable. Mr. Morrison then took the party in four motor cars in a ride of 25 to 30 miles over the Albany post-road, where different styles of pavement were seen, both brick and asphalt block; in Ardsley the latter were being laid over old Telford road. In Tarrytown, through Sleepy Hollow, a five-mile stretch of perfect asphalt block pavement, smooth as a hard-wood floor, was traversed. It is probably one of the best pavements to be found anywhere.

The party met on Friday morning at Borough Hall, Brooklyn, being joined by Mr. F. B. Marsh ('02), Assistant Engineer of the Board of Water Supply, who distributed printed information. Thence Mr. Cudworth conducted all to the Flatbush Avenue shaft of the aqueduct tunnel for the new Catskill Supply. Here Mr. Hale, engineer for Holbrook, Cabot, and Rollins, explained very clearly some of the principal features of the work, after which the party descended to the tunnel 325 feet below sea-level. After traversing the part under the avenue already lined with concrete, and Mr. Hale having explained the method of lining at the worst point, where 450 gallons per minute of (fresh) water had to be controlled, a point in the unlined tunnel was inspected where the compact rock free from water is classed as granodiorite, the party traversed the branch under Lafayette Street, and emerged through shaft 24 at Fort Greene Park. Again our friends served as hosts in treating the party to a sumptuous pre-arranged lunch at Hotel Imperial, where appropriate sentiments of greeting and appreciation were exchanged. Mr. E. H. Whitaker (of '02) with J. H. Williams & Co., of Brooklyn, joined the party here.

The party then proceeded by elevated and surface railway to Fort Hamilton,—permission to inspect having been secured in advance from the acting commandant, Lt. Col. H. C. Schumm. A most cordial reception was given by Col. Schumm, Capt. R. H. Williams, and Capt. H. S. Kerrick, who personally conducted the party about the fortifications. The operation of the searchlight, controlled by an officer at a distant point was exhibited, and the main features of the five-inch battery. Enough was shown of the

casemates, magazines, etc., to give an idea of the great difficulties which the officers have to contend with in the mere up-keep of these extensive and important works with a force which is quite inadequate to man them properly. Especial interest centered in the 12-inch battery, where Lt. Carpenter had a gun squad paraded, by whom one gun was operated,—raised into position for firing, and brought back or made to “disappear” behind the parapet. The wonderful mechanism and smoothness of operation of the Buffington-Crozier gun-carriage were carefully explained and demonstrated by Capt. Williams and the other officers, who described minutely the interior construction of this highest embodiment of applied mathematics and mechanics; which, without any disarrangement of its nicely adjusted scales, in absorbing the recoil of the gun, accomplishes a feat equivalent to stopping a 90-ton locomotive moving 50 miles per hour within a distance of 15 feet. The construction and operation of the “range finder” were shown and fully explained,—making evident how the exact position and course of a ship are determined and plotted every half minute. The great battery of mortars for long distance “vertical fire” was admired and its capacity for tremendous destruction made evident. The visitors were profoundly impressed by the scientific attainments and efficiency of these officers and the capability of the men responsible for the defense of the great metropolis.

It is impossible to give adequate expression of thanks and appreciation for the hospitality and personal attentions and assistance of so many Thayer School men, who had to take time from urgent responsibilities, and without whose cordial coöperation the great success of this tour would have been impossible.

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# DARTMOUTH COLLEGE BULLETIN

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SEPTEMBER, 1914

New Series

Vol. III, No. 4

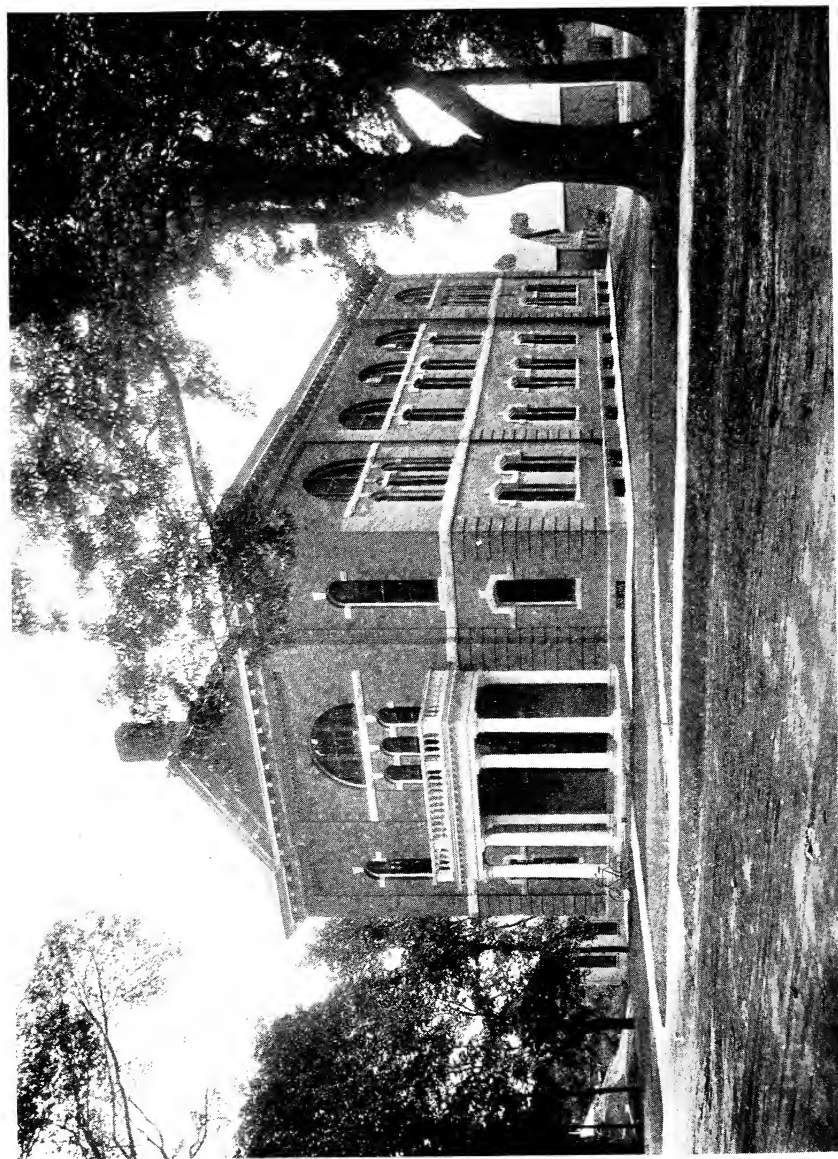
## THE THAYER SCHOOL OF CIVIL ENGINEERING

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SEPTEMBER, 1914







THAYER SCHOOL OF CIVIL ENGINEERING  
(Founded in 1871)

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## ANNUAL FOR 1914 OF THE THAYER SCHOOL OF CIVIL ENGINEERING

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DARTMOUTH COLLEGE

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AND OF THE  
THAYER SOCIETY OF ENGINEERS  
OF DARTMOUTH COLLEGE

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PRESENT ADDRESSES OF GRADUATES AND FORMER STUDENTS  
ALUMNI OF THE CHANDLER SCIENTIFIC SCHOOL AND  
OTHER DEPARTMENTS OF THE COLLEGE; AND  
OTHER PERTINENT INFORMATION

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PUBLISHED UNDER THE AUSPICES OF THE THAYER  
SOCIETY OF ENGINEERS OF DARTMOUTH COLLEGE

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SEPTEMBER, 1914

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## CALENDAR

- 1914
- July 16 Year of forty weeks of the first-year class began, Thursday, 8:15 a. m.
- September 17 Year of thirty-one weeks for second-year class begins, Wednesday, 8:30 a. m.
- December 18 Recess of 16 days begins, after the morning recitation, Friday.
- 1915
- January 5 Class-work resumed at 8:30 a. m., Tuesday.
- April 23-24 Meeting of the Board of Overseers, Friday. Examination of the classes. Reading of the theses of the class of 1915. Conferring of the Degree of Civil Engineer.
- Summer work-period of about twenty-one weeks begins for the first-year class.*
- July 15 Session-year 1915-1916 begins, Thursday, 8:15 a. m.

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Class-work is omitted on Thanksgiving day. Usually on a holiday the first morning recitation is held.



## THAYER SCHOOL OF CIVIL ENGINEERING

THE THAYER SCHOOL OF CIVIL ENGINEERING was established in 1871 to provide a *distinctly postgraduate* or professional course of study in Civil Engineering. The fundamental idea was to have all of the preparatory training precede the technical. A "program" of 200 pages, prepared under the direction of the founder, Gen. Sylvanus Thayer,—Col. U. S. Corps of Engineers, organizer and "father" of the U. S. Military Academy and its famous Superintendent from 1817 to 1833,—specified in great detail the requisites for admission, including the necessary mathematics, through the calculus, descriptive geometry, chemistry, physics, astronomy and related studies.

This was an entirely new departure, *vis.*: the policy of separating the preparatory and contributory subjects from those essentially professional and vocational. It set the highest standard of admission then anywhere prescribed, and established what is now known as the "six-year course". It depended upon the College or Scientific School, not only for the specified requirements, but also for some broader training in languages, history, and the "humanities" generally. During the first twenty years only a few accepted these conditions, but 72 per cent of those admitted had already received the degree of A.B. or B.S. Insistence upon this policy by the BOARD OF OVERSEERS OF THE THAYER SCHOOL led to a gradual readjustment of college programs so as to give larger place to courses in mathematical and physical science; and when Dr. Wm. J. Tucker assumed the presidency of Dartmouth College in 1893, he announced a broad policy in the following statement:—"It is always and everywhere the function of the College to give liberal education, beyond which and out of which the process of specialization may go in any direction and to any extent. The College must continually adjust itself to make proper connection with every kind of specialized work, not to do it."

THE BOARD OF OVERSEERS, which is responsible for the general program of courses of study and practice, then sanctioned the arrangement by which the first year's course in the THAYER SCHOOL could be elected by Seniors in College who had attained to the

prescribed standard. This action established the "five-year course", not only without diminishing the conditions of admission or the scope of the curriculum, but with important improvements and additions to the latter, to adopt it to present demands. This policy has been in continuous and successful operation during the past twenty years, although it has recently been proposed, discussed, and adopted elsewhere, as something of a novelty.

The administration of the THAYER SCHOOL has offered from the first a general course of study in civil engineering, aiming to include all essential principles and primary operations. Although "mechanical engineering" specifically is not included, the instruction in applied mathematics, mechanics and physics covers the fundamental theory, and there is a sufficient equipment for instruction in practical hydraulics, and a suitable course in electro-technics. Special attention is given to the indispensable *general qualifications* of the *graduate*, to wit: He must be adept in the routine practice of surveying, so as to hold his place under an exacting chief of party; he must be, at the start, an acceptable junior draftsman and an accurate computer; he must have practical knowledge of the ordinary materials of construction, gained by adequate laboratory tests and by trained powers of observation; he must have facility in making accurate and sufficiently complete records in a well-kept notebook; and the habit and method of informing himself as to the progress of engineering science and practice.

In the conduct of the surveying, conditions of actual practice are realized as much as possible or expedient, to wit: operations out-of-doors during three months continuously; entire days of unbroken work, and each man made responsible for a prescribed accomplishment and the checking of results; each subject is pursued uninterruptedly to a finish, and usually not more than two subjects are under consideration simultaneously. In the field-work an instructor is assigned to each party of five or six students; in classroom and laboratory instructors give personal supervision from three to eight hours daily; the environment offers wide variations of topography and favors unhampered out-door work for all operations of surveying, stream-gauging, etc. There are occasional opportunities for remunerative employment on surveys for outside parties.

*The principle of intensive instruction under close personal supervision* has always characterized the THAYER SCHOOL. While the several courses hereinafter described as broadly constituting the science and art of civil engineering present a greatly enlarged program, as compared with that of thirty years ago, the purpose is to restrict the work of instruction chiefly to those controlling principles, data, methods, operations, and the "business" of engineering which are fundamental, and which are needful for the usual emergencies of the early years of practice. Justification of this policy is seen in the records of forty classes,—the present activities of whose members are partly shown beyond,—where it appears that the graduates have done effective service and filled a variety of responsible positions,—in longitude from Newfoundland and Nova Scotia to the Philippine Islands and Japan, and in latitude from Buenos Aires to British Columbia and Alaska.

Antecedently, graduates of the CHANDLER SCHOOL OF SCIENCE AND ARTS, which graduated its first class in 1854, known before 1894 as the CHANDLER SCIENTIFIC DEPARTMENT OF DARTMOUTH COLLEGE, took a civil engineering course mostly included in their fourth year. The general alumni list at the end of this ANNUAL shows the professional standing of many of these graduates and of some B.A. men of the College who chose similar pursuits.

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DARTMOUTH COLLEGE,—to which the THAYER SCHOOL is related as a graduate department,—is one of the eight oldest colleges of America, established by royal charter in 1769. It has a healthful situation in the Village Precinct of Hanover, N. H., upon a plain 170 feet above the Connecticut river and 550 feet above sea-level. The territory occupied or controlled by the College comprises upwards of one hundred and thirty acres on which are forty-two buildings devoted directly to the uses of the College. Moreover, in case of illness, the Mary Hitchcock Memorial Hospital, constructed upon the most approved plans, and widely known, since its opening in 1893, as one of the best cottage hospitals in the country, furnishes the students such care and comforts as are seldom found outside of the larger cities.

RAILROAD CONNECTIONS. The railroad station, about half a mile from Hanover Inn, is Norwich and Hanover, on the Passumpsic Division of the Boston and Maine Railroad. At White River Junc-

tion, five miles south, five lines of railroads meet, viz.:—the Concord Division of the B. and M.; the Central Vermont and the Connecticut River Division, B. and M. R. R. (eight hours to New York),—connecting at Greenfield and Springfield for the West; the Central Vermont Railroad, North and West (thirty hours to Chicago); the Passumpsic Division, B. and M. R. R. (eight hours to Montreal); and the Woodstock R. R.

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## THE ANNUAL AND THE THAYER SOCIETY OF ENGINEERS

Previous to 1899 the announcements of the THAYER SCHOOL OF CIVIL ENGINEERING were made in the annual catalogues of DARTMOUTH COLLEGE and by occasional bulletins. To secure the advantage of a separate and earlier publication, giving addresses of graduates and other information not admissible in the catalogue, the ANNUAL was instituted; and soon afterwards its publication was assumed by the THAYER SOCIETY OF ENGINEERS through its Executive Committee. As the Society includes in its membership former members of the CHANDLER SCIENTIFIC DEPARTMENT of the College, as formerly known, it has also endeavored to get into touch with all other graduates of the College who have become identified with engineering or related pursuits. Hence the supplementary list of addresses at the end of this volume which is prepared by the Secretary of the Thayer Society of Engineers.

Since all the correspondence is duly filed, inquiries concerning THAYER SCHOOL men may be answered so far as information has been supplied, subject to confidential restrictions. *Good correspondents who send interesting letters describing works in progress or under observation, with items or comments which, without violating confidence, may be presented to the students for instruction or stimulation, may effectively impress the young men by this sort of "personal contact" with their predecessors.*

Copies of the ANNUALS of previous years will be sent on application to the Director, Prof. Robert Fletcher. These contain biographical sketches of deceased alumni, notices of the technical work of the School, and T. S. C. E. men, etc.

For further information concerning the THAYER SOCIETY OF ENGINEERS, apply to the Secretary, Geo. C. Stoddard, Civ. Eng., 215 West 125th St., New York City.

## REQUIREMENTS FOR ADMISSION

The essential requirements,—whether presented by students from DARTMOUTH COLLEGE or by applicants from other institutions,—formerly prescribed with particular details in “Program A”,—are:—1. Arithmetic; 2. Algebra, *Taylor* or *Bourdon*; 3. Geometry; 4. Trigonometry and Mensuration; 5. Compass Surveying; 6. Descriptive Geometry, including Shades, Shadows, Perspective, and Isometrical Drawing, *Church* or *Wilson*; 7. Analytic Geometry, *Bowser* or *Hardy*; 8. Calculus, *Hardy*; 9. Mechanics, as treated in Physics; 10. Chemistry: elementary theory and laboratory work one year; 11. Physics: as nearly as possible the equivalent of Physics 1, 2, 3, 4, and 5 of the College courses (3 and 4, laboratory practice); 12. Astronomy, *Young's Manual*; 13. Physical Geography and Meteorology. Equivalent text-books recognized.

Students in DARTMOUTH COLLEGE, in course of preparation for the THAYER SCHOOL are required to take the following courses:—  
[Before electing courses consult the Director of the THAYER SCHOOL.]

Graphics: 1, 2, 3, 4 (as per College schedule).

Engineering: 6.

Physics: 1, 2, 3, 4, 5.

Chemistry, one year.

Astronomy (consult Director of the THAYER SCHOOL).

Mathematics: Algebra, Trigonometry (unless presented when admitted to College), Analytical Geometry, Differential and Integral Calculus.

The following subjects are recommended, under the limitation that the student must fulfil the requirements of the College for majors and minors:—

English 9, 10

Geology 1, 2

French

Economics

German

Political Science

Spanish

Students in preparatory schools, having engineering in view, are advised to present for entrance: English, French or Latin, History, and as much elementary work in mathematics and physical science as they can learn thoroughly.

Candidates for admission have to pass an examination which is both oral and written. They should give notice of intention to apply by April 15 or earlier. They must present a certified record of standing and proficiency, and a neat set of *mechanical drawings*—constructions of important geometrical problems and leading problems of Descriptive Geometry. The usual examination covers more especially the essential principles of the branches numbered 2, 3, 4, 6, 7, 8, 9, 10, and 11. Prompt and accurate statement of principles and *definitions* is insisted upon, and a limited amount of blackboard work may be required. In all cases the “standing” or rated proficiency required is at least 75 per cent in the aggregate, in the subjects above specified, and not less than 85 per cent in at least three, nor less than 60 per cent in any one.

Students of approved ability and proficiency in the College may elect the first-year courses in the THAYER SCHOOL for their work of Senior year. At the close of the year, they may formally graduate from the College with the Bachelor’s degree. They may become eligible for the degree of Civil Engineer, after pursuing the advanced engineering courses, postgraduate studies of the second-year group.

Hitherto about seventy per cent of those admitted have taken the five-year course. A large proportion have returned to take the postgraduate year after intermissions of one, two, and three years.

Only young men of correct habits and high character will be accepted or retained. Indulgence of an appetite for intoxicating drink will be sufficient reason for rejection:—and such indulgence or other immorality by any member of the institution during his course will be sufficient cause for summary dismissal.

# COURSES OF STUDY AND PRACTICE

## FIRST YEAR

From the middle of July to the last week in April, forty weeks, each week comprising eleven half-days, of four and a half hours, devoted to study, field-work, or office work. In emergencies the half day is extended to five hours or more.

Instruction is given chiefly through daily recitations from textbooks, with comments and explanations by the instructor, and occasional test examinations. In each course one or two principal textbooks are purchased by the students, and others for reference or classroom use are made available by the School. The most recent suitable and standard books are procured. Each student is called upon occasionally to read and report upon an assigned topic, presenting results before the class both from prepared notes and sketches and by oral demonstration.

The amount of field work and practice in laboratory, etc., is made sufficient only for necessary training and to elucidate and emphasize the more important principles.

A.—THEORY AND PRACTICE OF SURVEYING. [This is preceded by a preliminary course of 104 hours during Junior year in College.]

1. INSTRUMENTS:—Engineer's transit, wye-level, dumpy level, precise level, prismatic compass and sextant: theory of these and perfecting of the adjustments; finding magnifying power of telescopes, sensitiveness of spirit levels and compass needles, etc.

2. PRELIMINARY PRACTICE until a required degree of facility is attained, and in which each student shall, by himself or as one of a party, do well a piece of test work of each of the following kinds:—differential levelling; angle measurement in a small scheme of triangulation on a systematic plan of survey for the season; a land survey involving ordinary measurement of lines and angles; measurement of a base-line by steel tape and method adequate to secure precision shown by a probable error not greater than 1 in 400,000; solar observations with engineer's transit for azimuth; observations on Polaris, etc., and determination of latitude; observations to determine declination of the magnetic needle.

3. GENERAL PRACTICE:—A topographical survey for a contour map, including part of a village or town; a road or line survey by stadia of several miles, making closed circuits for checks; the routine of an ordinary railroad survey, preliminary and "location", with some practice in staking out easement curves, frog-angles, and switches; and field work with the aneroid barometer, prismatic compass and hand level in reconnaissance. The office work includes the most approved methods of computing, use of planimeter and slide-rule, or more precise calculating machine, mapping and tracing. All the work is planned to yield definite and useful results in shape of maps and profiles of selected districts near by, and to foster an *esprit de corps* and pride in the accomplishment.

4. SPECIAL METHODS AND INSTRUMENTS:—Use of the plane-table, photography in surveying, geodetical surveying, and special practice relating to city and underground surveys, etc., can only be briefly considered in the class-room. Such special practice is beyond the domain of the School, but readily mastered in the future.

*About 154 half-days. Laboratory fee, \$3.00.*

B.—MECHANICS AND APPLICATIONS. Principles of statics, kinematics and kinetics; data and laws of friction, elements of mechanism, important applications in the stability of structures, machine design, operation of hoisting machinery, action of the locomotive engine, etc. *60 half-days.*

C.—MATERIALS OF ENGINEERING. 1. Physical and chemical properties and production of limes, cements, mortars, natural and artificial stone, timber, iron, steel, zinc, copper, aluminum, etc., and their mineral sources; durability; preservative materials. 2. Mechanical properties, analytically and experimentally treated. 3. Laboratory test of cements, iron, steel, wood, and other materials. *70 half-days.*

Experimental study of *mechanics of materials* is made by a prescribed series of tests for tension, compression and resistance to flexure, made by each student. Several series of cement tests are conducted each year by groups of two or three, on which reports are required. Occasionally reinforced concrete beams are made and tested.



D.—ORDINARY AND SPECIAL STRUCTURAL WORK AND OPERATIVE DETAILS. *Course begun:*—Elementary courses on stone-cutting (practical problems on the drafting board), masonry and foundations, piers, arches, culverts, and other masonry structures. 36 half-days.

E.—FRAMED STRUCTURES—TRUSSES FOR ROOFS AND BRIDGES, BUILDING SKELETONS ETC. *Course begun:*—Graphical statics and other analysis applied to girders and simple trusses. Ordinary and essential details. One or two simple designs. 40 half-days.

G.—ROADS, RAILROADS, AND TRANSPORTATION IN GENERAL. *Course begun:*—Roads, streets and pavements,—construction and maintenance. 20 half-days.

L.—PRINCIPLES OF ELECTRICAL ENGINEERING: (a) *Course in Direct Currents.* (b) *Course in Alternating Currents.*

The methods of the courses aim to impart a concise, practical knowledge of fundamental laws and phenomena, as well as of the best modern types of electrical apparatus, in order to give an understanding of their design, construction and operation.

(a) *Direct Currents:*—(First year).

The recitations of this Course deal with magnetic fields, electrical units, electrical energy and applications to primary and storage batteries, telephone and telegraph, generators and motors and electric lighting.

The laboratory exercises of the course are arranged to show the construction and use of the more important measuring instruments and to give practice in testing and conducting original investigations.

*Laboratory fee, \$4.00.*

## SECOND YEAR

Thirty-one weeks, of eleven half-days each, from the middle of September to the last Friday in April. During the second year the character and range of subjects call for a wider reading of treatises and current technical literature, which is promoted by full programmes of the courses and use of indexes. Some of the courses of this year are so interdependent that the time allotments, when stated, are only approximate.

D.—(*concluded*). Framing in wood and metal; advanced reading on masonry and foundations. Theory and practice in relation to retaining walls, dams, chimneys, fireproof and slow-burning construction of buildings; renewals and enlargements; including a *text-book course on the theory and applications of reinforced concrete in these and other cases*. Estimates and costs. Engineering contracts and specifications, and inspection. Auxiliary work and machinery. Tours for inspection of accessible works.

E.—(*concluded*). Analysis of stresses in trusses, framed arches, stone arches, and suspension bridges; details and maintenance. Frames of tall buildings. Tours of inspection. Elementary designing. *About 65 half-days*.

F.—ROCKWORK, TUNNELING, AND MINING. Outlines of Geology,—vacation reading. Explosives and blasting; special appliances and methods in subterraneous works. Reading and lectures.

G.—RAILROADS AND TRANSPORTATION. Economics of location, construction and maintenance of railways. Transportation problems in the United States:—railways and water transportation; railways and recent legislation. A brief study of street railways (electrical and cable traction, etc.), mountain railways, telpherage, and marine transportation. *About 30 half-days*.

Tuck School lectures on history and theory of transportation and on railroad operation and administration may be attended.

H.—HYDRAULIC ENGINEERING: (a) *Recitation Course*. (b) *Laboratory Course in Experimental Hydraulics*.

(a) Theory of the statics and dynamics of fluids; principles and data as affecting works controlling and utilizing water under pressure; laws of flow in channels, pipes, etc.; principles of measurement of small and large volumes; laws governing the operation of water wheels, pumps, motors and hydraulic rams, movable dams and canal locks; applications to development of water-power. Methods and data for the collection, storage, purification, and distribution of water for irrigation and municipal consumption.

(b) A series of experiments and prescribed tests for efficiency of nozzles, weirs, siphons, pumps, motors, meters, and rams; the gauging of streams (performed on the Connecticut

River); friction in the town mains, fire hose, and fittings. This gives the student good practice in pipe fitting, setting up motors, pumps, meters, etc., and overcoming unexpected difficulties.

*Laboratory fee, \$3.00.*

The Hanover Water Works, a gravity system, having a reservoir of 137,000,000 gallons capacity, a dam 720 feet long and a main and distribution system of nearly ten miles of pipe, affords excellent conditions for hydraulic experiments under a head of 190 feet or less, both at the street hydrants and in a well-equipped hydraulic laboratory.

I.—HEAT, HEAT ENGINES AND POWER. Principles of Thermodynamics; fuels and their combustion; steam. Heat engines: construction and operations of typical forms; application of laws. Development and transmission of power. *About 20 half-days.*

The central heating system of the College, serving forty buildings, affords opportunity for studying efficiency of boilers and furnaces, at times when regular tests are made. The pulp and paper mills at Wilder, nearby on the Connecticut River, give abundant facilities for studying the operation of a large water-power plant. Arrangements have been made heretofore for conducting tests of waterwheels, gauging flow in flumes, testing fire-pumps, etc., at these works. In the study of development of power, courses H, I, and L are necessarily partly concurrent. (The time available permits only a brief theoretical study of heat engines).

J.—SANITARY ENGINEERING. Drainage and sewerage: systems and appliances; governing principles. Heating and ventilation. Special study of "separate systems" and methods of sewage disposal. Sand filtration of water and sewage. *About 30 half-days.*

The village has three separate systems of sewerage, two built and owned by the College and adapted to a suitable disposal plant hereafter. Successful examples of heating and ventilation may be seen in the new buildings of the College. A model domestic sand filter has been in operation for some years at the THAYER SCHOOL building, and those who take special interest in the problem of the purification of water supply as affected by micro-organisms may arrange for such extra study as time available will allow.

K.—CANALS, IMPROVEMENT OF RIVERS AND HARBORS. Principles; surveys and observations; construction, in different cases—means and methods of procedure. (Briefly by reading; lectures on the Mississippi river levees, harbor jetties, breakwaters, the Panama Canal, etc.).

L.—PRINCIPLES OF APPLIED ELECTRICITY. (*b*) *Alternating Currents*. This course being a logical continuation of Course (*a*), is presented in a similar manner, but deals largely with the *engineering* features of applied electricity. The recitations will present the fundamental theories of alternating currents with the aid of calculus, vector analysis and Fourier's Theorem. Particular study will be given to magnetic-induction; transformers; electric power transmutation, transmission, and distribution.

The laboratory exercises are intended to give a firmer grasp of the theory and more adequate conception of "electrical mechanics."

*Laboratory fee, \$3.00.*

THESIS WORK in connection with one or more of the courses, and a week or two of exclusive time.

BUSINESS RELATIONS OF THE ENGINEER. Students of the THAYER SCHOOL may attend lectures given in the Tuck School of Administration and Finance, on appropriate subjects, so far as the schedules will permit.

THE PRINCIPAL TEXTBOOKS used are:—Johnson's "Treatise on Surveying," Webb's "Railroad Construction," Berger's "Manual of Engineer's Instruments," Merriman's "Least Squares," Woodward's "Rational and Applied Mechanics," Slocum's "Theoretical and Practical Mechanics," and problems from Sanborn's "Mechanics Problems," etc., Baker's "Masonry Construction," Johnson's "Materials of Construction," Merriman's "Mechanics of Materials," Carnegie's "Pocket Companion (Steel) and 'Cambria Steel,'" French and Ives' "Stone-Cutting," Johnson, Turneure, and Bryan's "Framed Structures," Baker's "Roads and Pavements," Franklin and Estey's "D. C. Machinery," and Sheldon's "A. C. Machinery." Taylor and Thompson's "Concrete and Reinforced Concrete," Turneure and Maurer's "Principles of Reinforced Concrete Construction," Tucker's "Contracts in Engineering," Johnson's "Railway Transportation," and read-

ing of Wellington's "Railway Location." Moulton's "Waterways vs. Railways," etc. Merriman's "Hydraulics," Turneaure and Russell's "Public Water Supplies," and classroom use of Hughes' and Safford's "Hydraulics," and references to Schuyler's "Dams," Mead's "Water-Power Engineering," etc. Folwell's "Sewerage," Hazen's "Clean Water," and reading of recent works on sanitation and sewage disposal. Classroom use of a suitable treatise on "Thermodynamics." Classroom use of Stevenson's "Canal and River Engineering" and Stevenson's "Harbors," Hunter's "Rivers and Estuaries," Reports on the Panama Canal, N. Y. State Barge Canals, etc.

TOURS, for the study and inspection of works in progress or completed are made when expedient. Visits have been made to Boston, Lawrence, Lowell, Worcester, Holyoke, New York, etc.; and have included the construction of the first Brooklyn suspension bridge; steel works; sewage disposal works at Worcester and Clinton; the principal works for water supply and waterpower development in New England; mines, bridge-works, large pumping plants, Massachusetts Experiment Station, etc. There is now so much to be seen of bridges, developments of water supplies, power and electric transmission, mines, etc., at points so near as to be reached by single-day trips, that longer tours are seldom expedient.

SUMMER WORK PERIOD AND INTERMEDIATE YEAR. Opportunities for summer employment have usually been found for the first-year men before or soon after May 1st. In most cases the students are qualified only for subordinate positions as draftsmen, assistants in city engineers' offices; on railway surveys or maintenance, U. S. Government Surveys, etc. The advantages from such practice are often very considerable, but vary with the opportunity offered, and with the character, aptitude, and previous experience of the man. Some find it necessary or desirable to continue in such employment during the entire following year, and some make their way to positions of responsibility; all of these appear in the ANNUAL, and College Catalogue, as the non-resident group for the intermediate year. Some of these return for the fifth year after an absence of one to three years.

TERMS, EXAMINATIONS, ETC. The session-year is divided into two terms by the holiday recess. The summer *work-period* extends from the last week in April to mid-September. The *graduating* THESES are submitted to the BOARD OF OVERSEERS, before whom the candidates for the *Degree of Civil of Engineer* present

themselves for examination in April; after which the degrees are formally conferred.

Tuition is one hundred and forty dollars per annum, one-half to be paid each term in advance. The graduation fee is ten dollars, and laboratory fees are \$7 per year. There is no provision for pecuniary aid. The annual expenses for an economical student will vary not far from four hundred and fifty to five hundred dollars, including tuition, books, stationery, board, fuel, light, and drawing instruments.

The condition of admission to the courses of the second year is that a student must maintain an average of 75 per cent. in the courses of the first year in the THAYER SCHOOL.

U. S. CIVIL SERVICE EXAMINATIONS. The U. S. Civil Service Commission has arranged to hold examinations in Hanover, for the convenience of applicants from the student body. The positions for which students of the THAYER SCHOOL OF CIVIL ENGINEERING are eligible are:—Aid, Coast and Geodetic Survey, assistant topographer, draftsman, civil engineer and draftsman, engineering and hydrographic aid, U. S. Geological Survey, surveyman, U. S. Reclamation Service, and junior engineer, U. S. Corps Engineers. The last four are usually possible only for second-year students, candidates for the degree of C.E.

For further information address President ERNEST F. NICHOLS, or Professor ROBERT FLETCHER, Director.

## BOARD OF OVERSEERS

ERNEST FOX NICHOLS, D.Sc., LL.D., President of Dartmouth, College, PRESIDENT.

HENRY LARCOM ABBOT, LL.D., lately Col. U. S. Corps of Engineers; Brig. Gen. U. S. Army, retired. Permanent address, 23 Berkeley St., Cambridge, Mass. Consulting Engineer. Lately member of International Comité Technique de la Compagnie Nouvelle du Canal de Panama and subsequently its Consulting Engineer. Member of the International Board of Consulting Engineers for the Panama Canal. Professor of Hydraulic Eng., George Washington Univ., Washington, D. C.

JONATHAN PARKER SNOW, C.E., Recently Chief Engineer of the Boston and Maine Railroad System. Consulting Civil Engineer, Office 18 Tremont St., Boston, Mass. Residence, 58 Chandler St., W. Somerville.

GUSTAV JOSEPH FIEBEGGER, Col. U. S. Army; Professor of Civil and Military Engineering, U. S. Mil. Academy, West Point, New York.

OTIS ELLIS HOVEY, C.E., Asst. Chief Engineer of the American Bridge Company of New York; Hudson Terminal Bldg., 30 Church St., New York City.

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### TREASURER

CHARLES PARKER CHASE, A.M., Hanover, N. H.

## BOARD OF INSTRUCTION

ERNEST FOX NICHOLS, D.Sc., LL.D., President of the College, PRESIDENT.

ROBERT FLETCHER, PH.D., Civ. Eng.

DIRECTOR and Professor of Civil Engineering:

Mechanics, Hydraulic and Sanitary Engineering, and courses on  
Bridges and Transportation.

JOHN VOSE HAZEN, C.E.

Professor of Civil Engineering on the Chandler Foundation:  
Railroad Surveying, Road Construction, and Masonry Structures.

CHARLES ARTHUR HOLDEN, C.E.

Professor of Civil Engineering: In charge of Surveying Courses;  
Materials of Construction and Mechanics of Materials; instruction  
in second year courses.

FRANK EUGENE AUSTIN, B.S.

Professor of Electrical Engineering:  
Experimental Hydraulics and Power Transmission.

SIDNEY LEE RUGGLES, C.E.

Instructor in Surveying, Graphics and Laboratory.

THORNDIKE SAVILLE, A.B. (Harvard), B.S. (Dart. Coll.).

Field Assistant in Surveying, July, August, and September.



## NON-RESIDENT LECTURERS

### SESSION-YEAR 1913-14

- COL. F. V. ABBOT, U. S. Corps of Engineers, an illustrated lecture on the dam, locks and Taintor gates of the great Winnebagoish reservoir in Minnesota; also the difficulties with the coffer-dams in the Mississippi river at St. Paul.
- MR. H. N. SAVAGE (T. S. C. E., 1890), Supervising Engineer U. S. Reclamation Service, Northern Division (Montana, Wyoming, N. Dakota), an illustrated lecture on the present status of the projects, and results of fair treatment of the Blackfeet Indians, by which, using their own teams, they have become valuable workers for the Government in building roads and dams.
- MR. C. L. CARPENTER (T. S. C. E., 1889), Manager of the Central Aguirre Co., Porto Rico, on engineering in the tropics, showing what engineering devices and good management have done to rescue the sugar industry under adverse influences.
- MR. O. E. HOVEY (T. S. C. E., 1889), Asst. Chief Eng. of the Am. Bridge Co., described in detail the great emergency dams of the Panama Canal and the problems developed in execution of the contract, of which he had charge. Illustrated by more than 100 lantern slides. He presented to the SCHOOL a large photograph of these locks at the Gatun dam.
- MR. C. A. FRENCH (Dartmouth Coll., 1893), City Engineer of Laconia, N. H., described the organization of the office and conduct of the work of a city engineer of a small city.
- MR. J. H. LETTENY (T. S. C. E., 1896), of the Eastern Dredging Co., of Boston, Mass., gave an interesting talk on dredging machinery and the business of dredging from the contractor's standpoint.
- MR. HAROLD PARKER (T. S. C. E., 1908), Engr. of Construction for the United Fruit Co., described in detail his experiences

and methods in building a very large hospital of reinforced concrete at Quirigua, Guatemala. (Mr. Parker has since built a hospital for the Company at Santa Marta, Colombia, S. A.)

MR. EDGAR H. HUNTER (T. S. C. E., 1902), Civ. Eng'r and Contractor, a talk on practical details of sewer construction, based upon an experience of several years.

MR. C. P. RICHARDSON (T. S. C. E., 1909), Asst. Eng'r on track elevation, Rock Id. R. R., Chicago, gave a talk on the constructive features and management of this great undertaking.

[It is interesting to notice the diversity of these works and the wide separation of the localities.]

**Lecturers for 1914-15.** Arrangements are not yet definitely made for the full list, but the following may be expected:—

MR. MORTON C. TUTTLE (Dart. Coll., B.S., 1897), Secretary Aberthaw Construction Co., Boston, Mass., on engineering in relation to business management.

MR. CALEB M. SAVILLE (Harvard, 1889), Chief Engr. Board of Water Comm'rs, Hartford, Conn., on suggestions for a more definite and perfected science of "engineering geology".

PROF. ARTHUR W. FRENCH (T. S. C. E., 1892), head of the Dept. of Civ. Eng., Worcester Polytech. Inst. Subject to be announced.

MR. WM. H. HAM (T. S. C. E., 1898), consulting engineer with French and Hubbard, Boston, Mass.; an illustrated talk on some expert work in reinforced concrete.

## REGISTER OF NAMES AND ADDRESSES BY CLASSES

### EXPLANATION

Those whose names appear in **black letter** received the DEGREE OF CIVIL ENGINEER; which is to be understood without particular designation. Other degrees (from Dartmouth College unless otherwise stated), are indicated by the usual title letters. *Names in italics* are of those who left at the end of the first year to engage in engineering or other business; also of a few who failed otherwise to qualify for the degree.

\*\*Denotes deceased. Biographical notices of the deceased of previous years may be found in the ANNUAL for 1899 and annually afterwards.

*The affixed date in parenthesis indicates when the last information was given. If any reader has later information please send it promptly to the Director, and to the Secretary of the Thayer Society of Engineers. Class secretaries are requested to coöperate.*

*All Thayer School men are particularly requested to inform the Director promptly as to any change in occupation or residence.*

T.S. indicates membership in the THAYER SOCIETY OF ENGINEERS.

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### 1873

\*\***Thomas Stevens Greenlay.** Died at San Antonio, Texas, Sept. 24, 1898. (See Annual for 1899.) Two sons succeeded to his business as manager of railway supply house.

\*\***Albert Hezekiah Porter, A.M.** Died at Thetford Center, Vt., Dec. 10, 1909; age 65 years. (See Annual for 1910.)

\*\***Henry Allen Hazen, A.M.** Died at Washington, D. C., Jan. 24, 1900. (See Annual for 1900.) Was Professor of Meteorology, U. S. Weather Bureau; author of various papers on meteorology.

## 1874

*James Trask Woodbury, A.B.* Farmer, Francestown, N. H. Attended the two years' course, but did not formally graduate.

## 1875

**Charles Everett Andrews, A.M.** Congregational minister and farmer, Walpole, Mass. (1906)

**Henry Martyn Paul, A.M.** Astronomer, Naval Observatory until 1899. Engineer, Bureau of Yards and Docks, until 1905. Professor of Mathematics, U. S. Naval Academy until 1912. Commissioned Professor of Mathematics in the Navy in 1897, and retired in 1913. Summer address, South Bristol, Me. Winter address, The Ontario, Washington, D. C.

**Jonathan Parker Snow.** Chief Engineer, Boston and Maine Railroad System from July 1, 1909, to July 1, 1911; having been bridge engineer since June, 1888. Consulting Civil Engineer, Office 18 Tremont St., Boston, Mass. Res. at 58 Chandler St., W. Somerville, Mass. Overseer THAYER SCHOOL C. E., Member Am. Soc. C. E. Member Boston Soc. C. E., Member Am. Soc. for Testing Materials, and Am. Ry. Eng. Assoc. T.S. Author of valuable committee reports and contributed discussions on iron and steel structures. Recently designed and directed construction of the new steel bridge at White River Junc. for town of Hartford, Vt.

*\*\*Edward Lewis Gage, B.S.* Died at Chicago, Ill., April 21, 1892. Was railroad engineer and ranchman in Texas.

## 1876

**John Vose Hazen, B.S.** Professor of Civil Engineering and Graphics, Chandler Scientific Course, and in the THAYER SCHOOL OF CIV. ENG., Dartmouth College. Memb. Am. Soc. C. E. Memb. of Soc. for Prom. of Eng. Educ. T.S. In practice as a Surveyor and Civil Engineer. Commissioner, Hanover Village Precinct,—in charge of street paving and improvements, nine years; School Commissioner.

**Charles Holmes Pettee, A.M.** Professor of Mathematics Dean of New Hampshire College, Durham, N. H., and acting President for a time. Memb. of Soc. for Prom. Eng. Educa., and of the A. A. A. S.

**\*\*Walter Henry Foster, B. S.** Died at Rutland, Vt., April 2, 1878. (See Annual for 1899.) Teacher.

## 1877

**Edward Kellogg Blanchard.** Chief Eng. Wyoming Const and Development Co., Buffalo, Wyo. Res. Seymour, Mo.

**George Arthur Butler, A.B.** Assistant Engineer, Bridges and Building Dept., Ill. Cent. R. R. 6730 Normal Ave., Chicago, Ill. No report since 1902.

**John Whitcher Record.** Engineer for Buffalo Dredging Company; dredging, construction of canals, breakwaters, docks, and foundations, Buffalo, N. Y., until 1912. Res. 819 Potomac Ave. Retired on account of poor health.

**John Alberto Worthen, B.S.** Civil Engineer, general practice, 557 Montclair Ave., Oakland, Cal. Res. 3618 University Ave., Los Angeles, Cal. (1912)

## 1878

**John Dye Lonsdale.** Manufacturer, Dale City, Guthrie Co., Ia. Lately County Surveyor.

**\*\*Mace Moulton.** Lately Consulting Engineer for iron and steel structures, New York City. Died suddenly, April 27, 1909 (See Annual for 1909.)

## 1879

**Ray Timothy Gile, B.S.** Civil Engineer and Surveyor, 61 Pleasant St., Littleton, N. H. Surveys for and construction of railroads, highways, sewerage, and waterworks; exploring, estimating and surveying of timber lands. T.S.

## 1880

**\*\*Chalmers Williams Stevens, M.S.** Killed by lightning, at National Observatory, Cordoba, Argentine Republic, Feb. 16, 1884. (See Annual for 1899.) The fine chime of bells for Rollins Chapel, Dartmouth College, was given as a memorial of Mr. Stevens by the late Hon. William E. Barrett of Boston, Mass. (Dart. Coll., 1889.)

## 1881

**\*\*Hiram Augustus Hitchcock, B.S.** Assoc. Prof. Civil Engineering, THAYER SCHOOL OF CIVIL ENGINEERING, 1883 to 1895. Died at Hanover, N. H., January 17, 1895. (See Annual for 1899.)

*Charles Damon Lamb, B.S.* Asst. Engr. U. S. A., U. S. Eng. Depot, foot of Arsenal St., St. Louis, Mo. Res. 3647 Hartford St.

*David Ramsay Reed, B.S.* Mining Engineer, 304 Boston Building, Denver, Col. Practice in the Western and Southern States.

**\*\*Elmer Kilburn.** Died at Omaha, Neb., April 16, 1881.

## 1882

**Sidney Bates Cady, A.B.** (Middlebury College.) Asst. Engr. Board of Public Improvements, Topographical Bureau, Borough of Brooklyn, New York City. Memb. of Soc. of the Municipal Engrs. of the city of New York. Res. 17 Walnut Terrace, Bloomfield, N. J.

**John Alexander Macnicol.** Consulting Eng. for the Snare & Triest Co., Woolworth Bldg., 233 Broadway, New York City and Havana. Box 733, Havana, Cuba. Memb. Am. Soc. C. E. T.S.

**\*\*Edmund Dorman Libby, A.B.** Died in Concord, N. H., April 24, 1903. (See Annual for 1903.) Was U. S. Engr. on Mississippi river improvement, St Louis to Cairo, about 14 years.

**\*\*Dana Chase Barber.** Died at his home, near Philadelphia, 1889. (See Annual for 1899.) Was a sanitary engineer in Philadelphia.

## 1883

**Sinclair Joseph Johnson, A.M.** (University of Wooster, O.) Railway and Automobile Specialties: 50 Church St., New York City. Res. 28 Montclair Ave., Montclair, N. J. (1912)

**Solomon Barnes Merrill, A.B.** In practice as Civil Engineer and Assayer. Since April, 1905, Secretary-Treasurer of Boulder Iron Works, Boulder, Colo. Address: 821 Mapleton Ave. (1910)

## 1884

**George Hunt Hutchinson, B.S.** Chief Eng. Northwestern Fuel Co., Pioneer Bldg., St. Paul, Minn. Res. 1717 Capitol Ave., St. Paul, Minn. Memb. Am. Soc. C. E. T.S.

**\*\*George Riedemann, B.S.** (College of the City of New York.) Died in New York, May 11, 1885.

## 1885

**Daniel Edward Bradley, B.S.** 1021 Asylum Ave., Hartford, Conn. Retired from business, May, 1910, as Pres. Berlin Construction Co. Memb. Am. Soc. C. E., and of Conn. Soc. C. E. T. S.

**Ralph Henry Brown.** Chief Engineer, Eastern Bridge and Structural Co., Worcester, Mass. Office and Works: Crescent St. Memb. Am. Soc. C. E. T.S.

**John Jacob Hopper, B.S.** Contractor and Civil Eng. 352 West 121st St., New York City. Jun. Am. Soc. C. E. Memb. Engineers Club. T.S. Mr. Hopper built the section of the N. Y. Rapid Transit Subway, 104th St. to Harlem River, including the tunnel through Central Park, executing this large contract without any serious accident. Register of New York County for a term of four years from January 1, 1914.

**\*\*Arthur Walker, A.B.** (Univ. of Wooster, O.) Died Sept. 27, 1891. Was a bridge draftsman and designer, Pittsburg, Pa.

*John James Marshall.* Student through the two years' course. Did not formally graduate. Last report: Marshall & Atherly, Engrs. and Contractors, Basin, Wyo. T.S. (1910)

*Benjamin Phillips, A.B.* Patent Lawyer, 53 State St., Boston, Mass. Phillips, Van Everen & Fish. Res. Lakeville, Mass. (1910)

**\*\*Irving Benjamin Hayes, A.B.** Physician, Florence, Mass. Died Jan. 3, 1909. (See Annual for 1910.)

## 1886

**Walter Whaley Curtis.** Consulting Civ. Eng., expert in patent cases. President of the Curtis Coal Mining Co. and Rapsion Coal Mining Co., 1015 North Nevada Ave., Colorado Springs, Colo. Removed from Chicago, June, 1913. Memb. Am. Soc. C. E., Western Soc. of Eng., and Am. Ry. Engineering Assoc.

**Malverd Abijah Howe, M.S.** (Norwich University, Vt.) Prof. of Civil Eng. and Director of the Course in Architecture, Rose Polytech. Inst., Terre Haute, Ind. Memb. Am. Soc. C. E.; Soc. for Prom. Eng. Educ., Am. Assoc. Adv. Sci., Am. Soc. for Testing Materials. Author of works and articles on theory of arches and bridge trusses. Lately revised treatise on Symmetrical Masonry Arches. Treatises on Influence Lines and Foundations.

**John Duncan Hutchinson, A.B.** (Middlebury College, Vt.) Civil Engineer, Antrim, N. H.

**John Frank Springfield, A.B.** Public Utilities, Hutchinson Kan. Perm. 64 Summer St., Rochester, N. H. T.S.

**Frank Lyon Wheaton.** Eng. Dept., D. L. & W. Ry., Hoboken, N. J. Res. 85 South Arlington Ave., East Orange, N. J. With this company since 1900 as Eng. of construction: having charge of the new double track tunnel through the Palisades, Jersey City; located the Hopatcong cut-off in northern New Jersey, supervising this very heavy construction, including two long arch bridges and ninety road culverts under high fills. (See *Eng. News*, Aug. 13, 1908; also *Eng. Record* and *Railroad Gazette*.) Memb. Am. Ry. & Engineering Assoc. T.S. Now in charge of construction, office at Nicholson, Pa., of 40 miles of new line northwest of Scranton, a double track tunnel 3600 ft. long, a concrete viaduct the largest in the world, 248 ft. high and 2300 ft. long, and another 150 feet high and 1500 feet long. New line laid with 105 lb. rails and creosoted ties.

**Rush Chellis, A.B.** Claremont, N. H. General practice as Engineer and Surveyor in Sullivan County and adjoining district. Also farmer and breeder of Jersey cattle. Representative, N. H. legislature, 1907 and 1909.

**Edwin Preston Dewey, B.S.** (New Hampshire College.) City Engineer, City Hall, Long Beach, Cal. Res. 829 Chester Place.

**Robert Hunter.** Present address unknown.

1887

**Walter Eugene Angier, B.S.** Since May 1, 1910, memb. of firm: Modjeski and Angier, Civil Engineers, 220 So. Michigan Ave., Chicago. Pittsburg office, 607 Arrot Bldg., Pittsburg, Pa. New York office, 101 Park Ave. Lately Res. Eng. Thebes Bridge,



Thebes, Ill. Res. 4538 Oakenwald Ave., Chicago, Ill. Memb. Am. Soc. C. E., Memb. Western Soc. Engrs., Memb. of Chicago Engrs. Club.

**Samuel Morey Wilcox, B.S.** U. S. Asst. Eng. (Principal since Aug., 1912), in charge of field office and work for improvement of Galveston Harbor; Office U. S. Engr., Galveston, Tex. Res. 1402 Ave. E.

## 1888

**Charles Herman Cheney, M.A.** Memb. and auditor, Cheney Brothers, Silk Manufacturers, South Manchester, Conn. (estab. 1838, incorp. 1854); advisory memb. of Board of Directors. Director and Sec. So. Manch. R. R. Co., So. Manch. Water Co., So. Manch. Light, Power and Tramway Co., So. Manch. Sanitary and Sewer Dist., and Manager So. Manch. R. R. Co. Trustee of Norwich University.

**Charles Henry Nichols, B.S.** (M. C. E. Norwich Univ., Vt.) Consulting Engineer; structural steel, foundations, reinforced concrete, timber-construction, etc. Since April 1, 1913, member of the firm of Bigelow & Nichols, Engineers and Contractors. 45 East 42nd St., New York City. Res. River Road, Bogota, N. J. Memb. Eng. Soc. Western Pa. T.S. Has designed the steel-work for some of the largest buildings in New York: lately the Bankers' Trust Bldg.

## 1889

**Charles Lincoln Carpenter, B.S.** Manager Central Aguirre Co. and Manager Ponce & Guayama R. R., Central Aguirre, Porto Rico, since September, 1912. Memb. Am. Soc. C. E., Am. Ry. Engrs. Assoc., and of Am. Soc. of Contracting Engrs. T.S.

**Charles Francis Chase, A.B.** Chief Eng., Berlin Construction Co., Berlin, Conn. Res. New Britain, Conn. Memb. Am. Soc. C. E., and of Conn. Soc. C. E. T.S. Since May 1, 1912, Chairman of the Board of Water Commissioners, New Britain.

**Herbert Stacy Eaton, B.S.** Asst. Eng. Visalia Elect. Ry. Co., Lemon Cove, Tulare Co., Cal. Res. Caruthers, Fresno Co., Cal. (1909) Letter returned unclaimed, 1911.

**Arthur Woodbury Hardy, B.S.** (New Hampshire College.) Pres. Garden City Spring Works, 2300 Archer Ave., Chicago. Res. 4020 Ellis Ave. T.S.

**Otis Ellis Hovey, B.S.** Asst. Chief Engr. American Bridge Co., Hudson Terminal Bldg., 30 Church St., New York City. Res. 304 W. 7th St., Plainfield, N. J. Memb. Am. Soc. C. E., Memb. Am. Soc. M. E., Memb. Am. Soc. for Testing Materials, Memb. Am. Iron and Steel Institute. Overseer of the THAYER SCHOOL OF CIV. ENG. T.S. As consulting engineer designed the procedure and appliances for removing from the cantilever ends of stiffening trusses of the Williamsburg bridge, New York, the 10-inch pins, boring the members *in situ* and replacing by 13-inch pins, without interfering with bridge service. Contributed article to *Engineering News*, of July 23, 1914; see also *Eng. Record*, Aug. 22d.

**Frank Berry Sanborn, B.S.** Prof. of Civil Eng., Tufts College, Mass. Consulting practice in engineering. Memb. Am. Soc. C. E., Boston Soc. C. E., Soc. for Prom. Eng. Educ., and Boston Chamber of Commerce. Res. Cambridge B, Mass. Director Boston Insulated Wire & Cable Co. Author of "Mechanics' Problems," and "A Public Health Survey of Lawrence, Mass." Inventor of a speedometer for boats, and low-pressure gauges, and flow recorders for rivers and sewers.

*Thomas Flynn.* Res. 511 East 134th St., New York City. T.S. (1910)

**\*\*William Robert Michie.** Died Feb. 2, 1899, at Johnstown, Pa. (See Annual for 1899.)

#### 1890

**Amasa Burton Clark, B.S.** President of Clark & Company, Engineers and contractors, Stephen Girard Bldg., Phila., Pa.; New York office, 225 Fifth Ave. Res. Germantown, Pa. Specialty: foundations, having designed, constructed or repaired foundations for a variety of structures in New York and elsewhere. President of Thayer Society of Engineers of Dartmouth College 1909, T.S.

**William Nelson Hazen, B.S.** (New Hampshire College.) Since Sept., 1912, Asst. Eng. for the N. Y. C. & H. R. R. R., 172 White St., Orange, N. J. Memb. Am. Soc. C. E., and Soc. for Testing Materials. T.S.

**Hiram Newton Savage, B.S.** (New Hampshire College.) Supervising Engineer Northern Division—Montana, Wyo., and So. Dakota,—U. S. Reclamation Service. Office at Great Falls, Montana. Address also care of U. S. Reclamation Service, Washington, D. C. Supervising the numerous projects in the Northwest, nine under construction; eight in operation. Memb. Am. Soc. C. E. T.S.

**George Pillsbury Wood, B.S.** (New Hampshire College.) Asst. Eng., Board of Water Supply, City of New York, from Nov. 14, 1906, to Feb. 28, 1911. Since latter date Div. Eng. in charge of Peekskill Div. Res. 217 Walnut St., Peekskill, N. Y. Memb. of Am. Soc. of C. E. T.S.

## 1891

**Hardy Smith Ferguson, B.S.** Chief Eng. Great Northern Paper Co. and West Branch Driving and Reservoir Dam Co., Milinocket, Me. Memb. Am. Soc. C. E. Memb. Am. Soc. Mech. Eng., and Can. Soc. C. E. T.S. Consulting Engr. for water power development, and construction and equipment of manuf'g plants. Since Feb., 1911, Consulting Eng., 200 Fifth Ave., New York City.

**Edward Dana Hardy.** U. S. Asst. Eng., Supt. of the Washington Aqueduct and Washington Aqued. filtration plant. 1st and Douglas Sts., N. W., Washington, D. C.; res. 2425 First St., N. W. Memb. Am. Soc. C. E., Am. Water Works Assoc., Washington Soc. of Engrs., and Wash. Acad. of Sciences. T.S.

**George Francis Sparhawk, B.L.** Engineer in charge of drafting room, American Bridge Co. Address: Care of Am. Bridge Co., Ambridge, Pa. Res. 490 East End Ave., Beaver, Pa. Memb. Am. Soc. for Testing Materials. T.S.

**\*\*Fred Ellsworth Lamb, B.S.** Died at Northfield, Vt., July 28, 1893. Was U. S. Junior Engr. and bridge draftsman.

## 1892

**Arthur Willard French.** Prof. of Civ. Eng. and head of the Dept., Worcester Polytech. Inst., Worcester, Mass. Res. 202 Russell St. Memb. Am. Soc. C. E., Am. Soc. Prom. Eng. Educ., National Cement Users Assoc. and Boston Soc. Civ. Eng. T.S. Consulting Engr. for reinforced concrete construction, etc.

*Charles Frederick Robinson, A.M., S.T.B.* Pastor of First Congregational Church, Waterville, Maine. Res. 9 Park St., Waterville, Maine.

**\*\*William Hazelton Puffer.** Died at Pecos, Texas, of cerebro-spinal meningitis, March 17, 1912. See Annual for 1912.

### 1893

**Herman Edward Abbott.** Asst. Eng. East Jersey Water Co., Paterson, N. J. Res. 158 Ellison St. T.S. Also consulting practice. In January, 1914, showed the Director some very interesting new construction of which he had charge in Paterson and Little Falls; new power house, settling basin, etc.

**Edwin John Morrison, B.L.** Pres. and Chief Eng. Hastings Pavement Co., 25 Broad St., New York, and Pres. Asphalt Block Pavement Co., Toledo, Ohio. Res. 55 Fanshaw Ave., Yonkers, N. Y. Has been twenty years with this company, and responsible director in the successful execution of many large contracts in the Eastern and Middle states, in which opportunities have been found for the employment of a considerable number of THAYER SCHOOL men from year to year. Member of the New York Chamber of Commerce. Pres. of the Dartmouth Club of New York, 1909-10. T.S.

**John Walker.** Lumber manufacturer, Newmarket, N. H.

**Sidney Grant Walker, B.S.** Lately Civil Eng. and Contractor in Hawaii. Since 1905, Insurance Engr. for the Manufacturers, Rhode Island, Mechanics, State, Enterprise, and American Mutual Fire Ins. Co's., John R. Freeman, President, 815 Grosvenor Bldg., Providence, R. I. Res. 50 Montague St. Memb. Am. Soc. M. E. T.S.

### 1894

**Percy Lovejoy Barker, B.S.** (New Hampshire College.) Supervisor of Bridges and Buildings, N. Y. C. & H. R. R. Co., Jersey Shore, Penn. T. S.

**Edward Monroe Stone, B.S.** (New Hampshire College.) Architect and Engineer, 49 Pearl St., Hartford, Conn. Memb. Conn. Soc. Civ. Engrs. Home address: 11 Summer St. T.S.

**Henry Allen Symonds.** Consulting Eng., Hanscom Construction Co., 70 Kilby St., Boston, Mass.; hydraulic work and water supply a specialty, including management of works. Res. 75 Crofton Road, Waban (Newton), Mass. Memb. Boston Soc. C. E. and New Eng. Water Works Assoc. T.S.

## 1895

**William Marston Ames, B.S.** Contracting and General practice, 87 Prospect St., Somersworth, N. H. Memb. Maine Soc. Civil Engrs. T.S. Reports plenty of work on small contracts.

**Fred Rufus Davis.** With Rockwood Sprinkler Co., 141 Milk St., Boston, Mass. Recently engaged on sprinkler system for five bldgs. at St. Paul's School, Concord, N. H. Perm. Goffstown, N. H. Assoc. Memb. Am. Soc. C. E. T.S.

**William Hayden Ford, B.S.** Consult. Engr., Commercial Trust Bldg., Philadelphia, Pa. New York Office, St. Paul Bldg., 220 Broadway. Home, 5443 Morris St., Germantown, Philadelphia, Pa. Memb. Am. Soc. C. E. and Engrs. Club of Philadelphia. T.S.

**Arthur Benjamin Ilsley, B.S.** Engineer of Bridges, Southern Ry., 1300 Penn. Ave., Washington, D. C. Res. 2930 Macomb St., Cleveland Park, N. W. Assoc. Memb. Am. Soc. Civ. Engrs. T.S.

**John Young Jewett, B.S.** (New Hampshire College.) Cement Expert, U. S. Reclamation Service, having supervision of all matters relating to purchase, test, and shipment of cement for the Service. Headquarters at 408 Commonwealth Bldg., Denver, Colo. Assoc. Memb. Am. Soc. C. E. Memb. Am. and International Soc. for Testing Materials, and Nat'l Assoc. Cement Users. Investigating influence of alkali on concrete. T.S.

**George Woodbury Parker, B.S.** Since Oct. 18, 1905, firm of Welsh and Parker, Civ. Engrs. and general insurance agents, Hudson, Mass. (1911)

**Williams Collins Phelps, B.S.** 165 Broadway, New York City. Home Address, 44 Martin St., Cambridge, Mass. Memb. Am. Soc. C. E. Member and Treas. T.S.

**Herbert Russell Thurston, B.S.** Reported to be with the Assoc. Factory Mut. Fire Ins. Cos., 31 Milk St., Boston, Mass. Home address: Melrose, Mass.

**Frank Hamant Trow, B.S.** Lately Div. Engr. on construction of Wachusett Dam for Met. Water and Sewerage Board, Clinton, Mass. Since Oct. 1, 1908, Chief Engr. for Winston & Co., on the contract for the main dams for the Ashhokan reservoir, Brown Station, N. Y. Assoc. Memb. Am. Soc. C. E. T.S.

**\*\*Robert Doty Maynard, A.B.** Died in Springfield, Mass., May 26, 1906.

*Arthur Allan Adams, B.S.* For many years Superintendent of Streets and Sewers, Springfield, Mass. Pres. of the firm of Birnie, Adams & Ruxton Construction Co. Res. 78 Westminster St. T.S.

*Charles Timothy Rossiter, B.S.* Farmer and cattle breeder, Claremont, N. H. In a letter not long ago testified to the value of college work as contributing decidedly to large success in his occupation, to which he was impelled by ill health. T.S.

*Benjamin Franklin Welton, B.S.* Efficiency engr. in charge of efficiency staff, Commissioners of accounts, 51 Chambers St., New York City. Res. at 1 Weiner Place, Tompkinsville. Charter Memb. of Efficiency Soc. Assoc. Memb. Am. Soc. C. E. T.S. Author of article in *Annals Am. Soc. Polit. and Social Science*, May, 1912, on "Efficiency in Municipal Labor".

### 1896

**Edwin Roscoe Davis, B.L.** Div Engr. on construction of viaducts of reinforced concrete on the Key West Extension of the Florida East Coast Ry., Marathon, Fla. T.S. (1911)

**William Harry Langmaid, B.S.** Permanent address: Pike, N. H. With the Pike Mfg. Co. (quarries and factories in Ark., Ind., Vt., and Littleton, N. H.) during the past fifteen years, surveys and office work. Res. East Haverhill, N. H. (1912)

**John Henry Letteney, B.S.** Contractor for dredging, dock, river and harbor improvements. 101 Tremont St., Boston, Mass. Res. 18 Allerton Road, Newton Highlands, Mass. T.S.

**Samuel Julian Lord, M.L.** Chief Engineer of the City of Manchester, N. H., and head of the Board of Street and Park Commissioners. Mr. Lord has made his well organized office of the city engineer a model, for years recognized as a popular "institution" of the city. T.S.

**George James McIndoe, B.S.** Asst. Eng. in charge of construction department, Hastings Pavement Co., 25 Broad St., New York City. Res. 2685 Heath Ave., Bronx Borough. T.S.

**Arthur William Stone, B.S.** Engineer on construction, and Gen. Supt. of Works, for Wm. Bradley & Son, Cut Stone Contractors, New York and Brooklyn, Cleveland and Bedford, Ind. General Manager of Hoosier Cut Stone Co., Bedford, Ind. 1718 14th St., Bedford, Ind. Perm. Hartford, Vt. T.S.

**\*\*Frederick Reginald French.** Lately Assistant Chief Engineer for harbor works, Manzanillo, Mexico. Died Nov. 20, 1904, at Santa Barbara, Cal. (See Annual for 1905.)

*Harlan Augustus Cochran, B.S.* Permanent address: West Derry, N. H. Since Feb., 1905, associated with the Perkins Hardy Co., Shoe Mfg., West Derry, N. H. (1909)

*Charles Arthur Holden, B.S.* Graduate, T. S. C. E. 1901. (See beyond.)

**\*\*Alexander Anderson McKenzie, B. S.** Died at Hanover, N. H., August 25, 1904. Was Supt. of Bldgs. and Engr. for Dartmouth College. (See Annual for 1904.)

#### 1897

**Henry Norwood Chase, B.S.** Lately U. S. Junior Engr., since August 3, 1904, on harbor improvement, U. S. Engineer Office, Boston, Mass. Since May, 1913, Engr. for G. H. Brugmann and Bros., East Boston, Mass. Perm. West Harwich, Mass. (1913)

**Moses Harry Hoyt, B.S.** Asst. Chief Draftsman, Belmont Iron Works, 22nd St. and Washington Ave., Phila. Res. 102 E. Franklin St., Media, Penn. Perm. 92 Charles St., Fitchburg, Mass. (1909)

**Samuel Alexander McCoy, B.S.** Since July 18, 1909, member of the firm of Boynton, Church & McCoy, Contractors, German Life Bldg., St. Paul, Minn. "Handling general railroad construction in the Northwest." Res. 1725 Eleventh Ave., Spokane, Wash. Memb. Am. Soc. Civ. Engrs. T.S. By recent letter, at Prince George, B. C.

**Hugh Burdette Tabor, B.S.** Asst. Gen. Representative U. S. Steel Products Export Co., 30 Church St., New York City. Agency

at 544 Bartolomé Mitre, Buenos Aires, Argentine Republic, S. A. Perm.: Hanover, N. H. T.S.

**\*\*Sidney Willis Bowles.** Died at Easton, N. H., March 7, 1902. Was Forester and Overseer of Dartmouth College Grant, N. H. (See Annual for 1902.)

*Edward Jothan Johnson, B.S.* Formerly City Engineer, Nashua, N. H. In business, Spokane, Wash., 219-220 Lindelle Bldg. Res. 841 Cliff Ave. T.S.

*William Blaisdell Plumer, B.S.* Asst. Supt. Plan Dept., Assoc. Fact. Mut. Fire Ins. Cos., 31 Milk St., Boston, Mass. (1913)

*Herbert Andrew Warden, B.S.* One year post-graduate study at Cornell University. Electrical Engr., 14 South Water St., Newburg, N. Y. (1910)

**\*\*Herbert Augustus Rowe, B.S.** Died at Holyoke, Mass., October 8, 1901. Was Mill Engr. for Tower and Wallace. (See Annual for 1902.)

#### 1898

**James Leland Averill.** (C.E. Norwich University, also.) Ch. Eng. for Hamilton & Chambers, 29 Broadway, New York City, since May 15, 1911. Perm. Northfield, Vt. Assoc. Memb. Am. Soc. C. E. T.S. (1913)

**William Hoyt Balch, B.S.** Eng. Aberthaw Construction Co., Boston, Mass., up to 1908. March 1, 1909, to May 1, 1914, Asst. Director, Direccion de Obras Publicas, Santo Domingo City, W. I. Res. 46 Green St., Hudson, Mass. Memb. Am. Soc. C. E., and Boston Soc. C. E. T.S.

**Maurice Fritchley Brown, B.S.** Chief Engineer Boston Bridge Works, 47 Winter St., Boston, Mass. Res. Winchester. Memb. Am. Soc. C. E., of Boston Soc. C. E., and of Am. Ry. Eng. Assoc. T.S.

**William Hale Ham, B.S.** Since March, 1909, consulting eng. associated with French & Hubbard, Cons. Engrs., 88 Pearl St., Boston, Mass. Res. 37 Westbourne Road, Newton Center, Mass. Memb. Am. Soc. C. E. Memb. Nat. Assoc. of Cement Users.

**John Leroy Mann, B.A.** Formerly Assoc. Professor in Civil Engineering at the THAYER SCHOOL OF CIVIL ENGINEERING. Asst. Engr. Reclamation Service, Belle Fourche Project, 1905, until



1908. Ingeniero del Gobierno, Dept. Public Works, Dominican Republic, W. I., in the following capacities: Director of Irrigation in Monte Cristi, Acting Director General, Chief Engr. Ferrocarril del Norte, and Director General of Public Works, Apr. 1, 1912, to Sept., 1913. Now Assoc. Efficiency Engr., Efficiency Staff, City of New York. 51 Chambers St. Perm. Randolph, Vt. Memb. Am. Soc. C. E. Memb. Am. Soc. Eng. Contractors and of Boston Soc. Civ. Engrs. T.S.

*Harold Bemis Shattuck, B.S.* Assoc. Professor of Civil Eng., Penn. State Coll. Res. 122 West Beaver Ave., State College, Penn. Degree of B.S. in Civil Engineering from Pennsylvania State College, June, 1904. Memb. of Soc. for Prom. Eng. Educ., Engrs.' Soc. of Pennsylvania, and Nat. Geo. Soc. Perm. 17 Orange St., Nashua, N. H.

#### 1899

No graduates. The seven members of this class were granted leave of absence for one year to accept professional employment. All the members were graduates of Dartmouth College in 1898. Three were graduated from the THAYER SCHOOL in 1900, one in 1901, and one in 1903.

*Myron George Littlefield, B.S.* Since July 20, 1908, draftsman, McClintic-Marshall Construction Co., Rankin, Pa., where he may be addressed. (1911)

*Oscar Persons Tabor, B.S.* Draftsman for the Norcross Bros. Co., Worcester, Mass. Address: 286 Lincoln St.

#### 1900

**Harry Wallace Clark, B.S.** Concrete foreman for Puget Sound Mills & Timber Co., Port Angeles, Wash. Res. 1217 Mitchell St., Victoria, B. C. (1913)

**John Alfred Gilman, B.S.** Civil and Mining Engineer in Greenville, Ky. Gen. Mgr., Sec. and Treas., Greenville Light and Water Co.

**Albert Henry Greenwood, B.S.** Since April 1, 1910, in private practice, firm of Greenwood & Noerr, Cons. Engrs., 847 Main St., Hartford, Conn. Res. Grand View Terrace. Asso. Memb. Am. Soc. C. E. Memb. Conn. Soc. C. E. T.S. Largely mill and factory construction, including light, heat, and power.

**George Henry Nolan, B.S.** Gen. Manager, Snare & Triest Co., Woolworth Bldg., 233 Broadway, New York City. Box 733, Havana, Cuba. Perm. Middleboro, Mass. T.S.

**Luther Stevens Oakes, B.S.** Lately Division Engineer, Northern Pacific Railway. Member of the contracting firm of Winston Bros. Co., 801 Globe Bldg., Minneapolis, Minn. Now at Lemont, Ill., on contract for excavating Sect. 2 of Calumet Sag Channel of Sanitary Dist. of Chicago. Perm. care Dr. H. Burbridge, Woodstock, Vt. Assoc. Memb. Am. Soc. Civ. Engrs. T.S.

**Herbert Leslie Watson, B.S.** Chief Draftsman in office of Electrical Eng. of N. Y., N. H. & H. R. R. In charge of office and designing of all structural steel bents and towers for supporting overhead electrical power wires. Res. 201 Ellsworth Ave., New Haven, Conn. Perm. care of D. A. Watson, 325 Young St., Manchester, N. H. T.S.

**Thomas Tupper Whittier, B.S.** Assistant Engineer with George F. Hardy, 309 Broadway, New York City. Res. 115 Schermerhorn St., Brooklyn, N. Y. Memb. Am. Soc. C. E. T.S.

**Philip Harold Winchester, B.S.** Since Jan. 1, 1910, Div. Engineer, St. Lawrence Div., N. Y. C. & H. R. R. Res. 303 Ten Eyck St., Watertown, N. Y. Assoc. Memb. Am. Soc. C. E. T.S.

*Albert Leet Galusha, B.S.* A. L. Galusha & Co., 215 Norfolk St., Dorchester Center, Mass. Manufacturing marine and land gas producers for power purposes.

*John Leonard Sanborn, B.S.* Student two years; failed to qualify for graduation. No report for some years.

*Edward Beaumont Wardle, B.S.* With Geo. F. Hardy (Dartmouth College, 1888) Consulting Engr., 309 Broadway, New York, till Sept. 1, 1914. After that date Chief Engineer, Laurentide Company, Ltd., Grand Mere, P. Q., Canada. T.S.

*\*\*John McQuesten French, B.S.* Died suddenly August 29, 1906. (See Necrology in Annual for 1906.)

## 1901

**John Albert Anderson, B.S.** 416 Third St., Baton Rouge, La. Dealer in books, stationery, school books, pictures, music, and college supplies.

**Alvah Tennant Fowler, B.S.** Topographical Engr., U. S. Geological Survey, Washington, D. C. Perm. 117 Center St., Concord, N. H. Member of National Geographic Soc. and Washington Soc. Engrs. T. S. Since Aug., 1914, in Branch Office U. S. G. S., Sacramento, Calif.,—working on the Hawaiian survey.

**Charles Arthur Holden, B.S.** Professor of Civ. Eng., THAYER SCHOOL OF CIVIL ENGINEERING, Hanover, N. H. Memb. Am. Soc. for Prom. Eng. Education. Assoc. Memb. Am. Soc. C. E. Memb. National Geog. Soc. T.S. Local practice as surveyor and civil engineer. Chairman Board of Precinct Comm'rs in charge of street maintenance and improvements.

**Charles Hamilton Hoyt, B.S.** Consulting Civ. Eng. and Contractor, 503 Evans Bldg., Washington, D. C. Specialty, highway work. Res. 1002 N St., N. W. Member of law firm of Hanley & Hoyt, Evans bldg.

**William Loveland Hutchinson, B.S.** Res. at Cecil, Washington Co., Pa., 15 miles from Pittsburg, where he is also managing his own stock farm.

**Clarence Erwin Paddock, B.S.** Lately with Berlin Construction Co., Berlin, Conn. Since Sept. 1, 1909, Teacher of Applied Mathematics and Drafting, Springfield Technical High School. Res. 13 Northampton Ave., Springfield, Mass. Summer of 1914 with Eastern Bridge & Structural Co., Worcester, Mass.

**Charles Sargent, B.S.** Asst. Eng. U. S. Reclamation Service, Mitchell, Neb. Perm. Walpole, N. H.

**Frank Dana Sears, B.S.** Supervising Prefect of Girard College, Philadelphia, Pa.

**Samuel Justin Smith, B.S.** Lately Asst. Eng., North Pacific R. R. Member of contracting firms of G. A. Carlson & Co., and Carlson, Chindahl & Co., railroad contractors, 322 Fernwell Bldg., Spokane, Wash. Perm. Windsor, Vt.

**\*\*John Hutchinson Wood, B.S.** Lately Assistant Engr., Dept. of Public Works, Bureau of Water, Pittsburg, Pa. (See Annual for 1910.)

*John William Ash, B.S.* Lately Asst. Eng. for Southern Railroad. Civil Engr. and Contractor, 528 Temple Court Bldg., Chattanooga, Tenn. Building 4-track concrete underpass for Southern Ry. at Atlanta, Ga. Home, 107 Chamberlain Ave., Chattanooga, Tenn. T.S.

*Edgar Randall Cate, B.S.* Lately member of firm, New Jersey Boiler Co., Boonton, N. J. Pittsburg representative of Westinghouse, Church, Kerr & Co., 10 Bridge St., New York City. Address: Union Bank Bldg., Pittsburg, Pa., T.S. (1913)

*Jasper Manlius Gibson, B.S.* Lately with Post & McCord, New York. Now consulting eng'r on structural design and foundations, care Boller, Hodge and Baird, 111 Broadway, New York City. Res. 161 W. 103d St. Memb. Am. Soc. C. E. T.S. (1913)

*Charles Augustine Rich, B.S.* Returned from South Africa in April, 1905. Partner in firm of Hoppin & Rich, Engrs. and Contractors, 1007 Central Nat'l Bank Bldg., Peoria, Ill. Res. 3116 Western Ave.

*Wilfred Carey Risley, B.S.* Field Engineer of the Dominion Iron & Steel Co., P. O. Box 2, Sydney, Nova Scotia. Res. 154 Whitney Ave. Member Mining Society of Nova Scotia. T.S.

*Horace Holmes Sears, B.S.* City Engr. Redwood City, San Mateo Co., Cal. Licensed Surveyor, State of Calif. Charter Memb. of the Sacramento Civil Engrs. Assoc. T.S.

*Embert Hiram Sprague, B.S.* After residence of six years returned from South Africa. Lately Engr. in New York City. No report for several years.

## 1902

**John Gilbert Andrews, B.S.** Contracting Engr. Boston Bridge Works, Inc., 47 Winter St., Boston, Mass. Res. 131 Bacon St., Natick, Mass. T.S.

**Charles Richard Chase, B.S.** Asst. Eng. in charge of contract No. 42-A, Barge Canal, Dept of New York State Engineer. Barge Canal Office, Utica, N. Y. Res. 5 Hopper St., Utica, N. Y. Perm. Rochester, N. H. T.S.

**John William Crowell, B.S.** Since Oct. 1, 1905, Professor of Civ. Eng. at Mt. Allison University. P. O. Box 35, Sackville, N. B., Canada. Member Board of Governors of the Nova Scotia

Technical College. Honorary President of the Mount Allison Engineering Society.

**Frank Ezekiel Cudworth, B.S.** Engr. for Holbrook, Cabot & Rollins Corporation, 331 Madison Ave., New York City. Memb. Am. Soc. Eng. Contractors. T.S. Past six months Res. Engr. on pneumatic foundation for 50 Broad St. bldg. Res. 221 Eastern Parkway, Brooklyn.

**Donald Derickson, B.S.** Since Sept., 1912, Head of the School of Civil and Sanitary Eng., and Professor of Bridge and Structural Eng., Tulane Univ., New Orleans, La. Memb. Louisiana Eng. Soc. Assoc. Memb. Am. Soc. C. E. Private practice, designs and reports on bridges and structures of reinforced concrete.

**Edgar Hayes Hunter, B.S.** Civil Engr. and Contractor; builder of new bldgs.: Dartmouth Savings Bank, gymnasium for Kimball Union Acad., stack room for Howe library, and six dwellings, during past year.

**James Bradford McIntyre, B.S.** Lately Gen. Foreman of Erection North Works Ill. Steel Co., Chicago, Ill.; erected the new plant of the Steel Corporation at Gary, Ind. Supt. Ill. Steel Warehouse Co. since April, 1912; 21st and Gratiot Sts., St. Louis, Mo.; perm. Randolph, Vt. Memb. Western Soc. of Engrs. (1912)

**Francis Beal Marsh, B.S.** Since May 10, 1907, Asst. Engr., N. Y. Board of Water Supply, Designing Dept., 165 Broadway, New York City. Home: Hollywood Ave., Crestwood, Tuckahoe, N. Y. Assoc. Memb. Am. Soc. Civ. Engrs., and Soc. of The Municipal Engrs. of New York. T.S.

**Frank Warren Newhall, B.S.** Chief Engr., Coke Works and Northern Coal Mines of Republic Iron & Steel Co. Inspector of Safety and Operation. Address: Republic, Fayette Co., Pa. Perm. Danvers, Mass. T.S.

**Arthur Henry Norris, B.S.** Since Nov., 1907, in private practice, 1648 Park Ave., Fremont, Neb.; largely drainage work. Perm. 40 Pond St., Hyde Park, Mass.

**Warren Fuller Rugg, B.S.** Lately Engr. N. Y. Board of Water Supply; on construction of Catskill Aqueduct, including open cut, grade tunnel and steel pipe siphon. Since April 20, 1914, Asst. Engr. N. Y. State Highway Comm. Just completing one

and one-half miles concrete road near Brewster, N. Y. Res. 767 Elm St., Peekskill, N. Y. Assoc. Memb. Am. Soc. C. E. T.S.

**Everett Mellen Stevens, B.S.** President of Nashua Granite Co., 254 Main St., Nashua, N. H. Asst. Sales Mgr., Nashua Machine Co., 127 Federal St., Boston, Mass. T.S.

**Albert Lyman True, B.S.** Jun. Eng. U. S. Eng's. Office, Portland, Me., until March 10, 1906, when he suddenly disappeared. Diligent search has failed to solve the mystery.

*Earl Francis Whitaker, B.S.* Since May 1, 1909, Purchasing Agent for J. H. Williams & Co., drop forgings, 150 Hamilton Ave., Brooklyn, N. Y. Address: 7815 4th Ave., Brooklyn. T.S.

### 1903

**Carroll Worthen Davis, B.S.** Lately Supt. of construction, Harlem Contracting Co., New York. Civil Engr. and Surveyor: surveys, drainage, contracts for well-boring and drilling. Corning, Tehuma Co., Calif. T.S. (1913)

**Royal Belden Doane, B.S.** Structural Engineer, with Berlin Construction Co., Berlin, Conn., since Apr. 15, 1912. Res. Maple Hill, New Britain. T.S.

**Leslie Boynton Farr, B.S.** President of the Harlem Contracting Co., 2 Rector St., New York. Manufacture and construction of asphalt block pavement. Res. Ft. Washington Ave. and 179th St. T.S.

**Harry Cyrus Hill, B.S.** State Engineer of New Hampshire, Jan., 1910, to Mar., 1912. Engineer for the Lane Const. Corporation, Meriden, Conn., since March 22, 1912. Res. 58 North St., Binghamton, N. Y. Memb. Am. Soc. C. E., Am. Assoc. for Highway Improvement, Mass. Highway Assoc., and T.S.

**Maurice Joseph Leahy, B.S.** Asst. Eng. for Geo. F. Hardy, Mill Architect and Hydraulic Eng., 309 Broadway, New York City. On construction for Laurentide Co., Ltd., Grand Mere, P. Q. Perm. South Hadley Falls, Mass. Assoc. Memb. Am. Soc. C. E. T.S.

**Locke McIndoe Perkins, B.S.** App't'd Eng. of Maint. of Way of lines west of Paradise, Mont., June 15, 1911; jurisdiction of several thousand miles of railroad. Gen. Office, North Pac.

Ry., Tacoma, Wash. Res. 2111 No. Washington Ave. Memb. Am. Ry Eng. Assoc. T.S.

**Harold Edward Plumer, B.S.** Chief Eng. of branch office of Turner Construction Co. of New York, located in Buffalo, N. Y., 312 Prudential Bldg. Memb. Am. Soc. C. E.; T.S. Res. University Club, Buffalo, N. Y.

**John Endicott Porter, B.S.** Asst. Eng., office of Engr. of Structures, N. Y. C. & H. R. R. R. Co., New York City. Res. 4 Ashburton Place, Yonkers, N. Y. Assoc. Memb. Am. Soc. C. E. T. S.

**Harold Samuel Richmond, B.S.** (Norwich Univ., Vt.) Since Mar., 1913, structural engr. for Gibbs & Hill, cons. elect. engrs.; lately designing catenary system and power house structure, N. & W. Ry. Also catenary construction for Philadelphia-Paoli Electrification. Penn. R. R. See *Elect. Railway Jour.*, Apr. 18, 1914. Room 701 Penna Ry. Station, New York City. Home: Hartsdale, N. Y., or Northfield, Vt. T.S.

**George Arthur Sampson, B.S.** Principal Assistant to Robert Spurr Weston, Consulting Sanitary Engr., 14 Beacon St., Boston, Mass. Res. 695 Washington St., Brighton, Mass. Assoc. Memb. Am. Soc. C. E., Memb. Boston Soc. C. E., and New Eng. Water Works Assoc.

**Albert Smith, B.S.** Formerly with the U. S. Steel Co., Chicago. Prof. of Structural Engineering, Purdue University, Lafayette, Ind. Res. 1022 Seventh St., West. Assoc. Am. Soc. C. E. Memb. of Western Soc. Civ. Engrs. Pres. Indiana Engineering Society. Fellow of Ind. Acad. of Science. T.S. Author of "Stresses in Simple Framed Structures", "Wind Pressure on Buildings by Measurements", and "Wind Loads on Buildings", Dec., 1913. T.S.

**Fred Caswell Stanton, B.S.** Asst. Engr. on the Panama Canal. In charge of construction of Colon breakwaters, including since Jan., 1913, rock quarry at Porto Bello. Since Sept., 1907, member of firm Stanton & White, Dredging Contractors, Greenville, Miss. Perm. Vineyard Haven, Mass. Assoc. Memb. Am. Soc. C. E. Memb. Internat'l Assoc. of Navigation Congresses. T.S.

**Arthur Clarence Tozzer, B. S.** New York City Gen'l Supt. for the Turner Construction Co., 11 Broadway, New York City. Perm. 62 Nahant St., Lynn, Mass. Assoc. Memb. Am. Soc. Civ. Engrs. Memb. Engineers' Club, and American Concrete Institute. T.S.

**John Walker, B.S.** Lately Div. Eng. Ill. Cent. Ry., and in office of U. P. R. R., and Ass't City Eng., Cheyenne, Wyo. Res. 115 West 19th St. Since Apr. 6, 1914, Civ. Eng'r Interstate Commerce Comm. on revaluation of railroads. Forwarding address, care of I. C. C., 731 Wells Fargo Bldg., San Francisco, Cal. T.S.

**Arthur Ellsworth Winslow.** (C. E. Norwich Univ.) Professor of Civil Engineering, Norwich University, Northfield, Vt. Assoc. Memb. Am. Soc. C. E.

*Herbert Carroll Adams, B.S.* Designer and Estimator Am. Bridge Co., Little Falls, New Jersey. New York Office, 30 Church St.

*Herman Keidel Clifford de Anguera, B.S.* Graduated from Rochester Theological Seminary in May, 1909. Religious work:—Director of Y. M. C. A., 32 Pearl St., Worcester, Mass. Home address, 46 Beaver St.

*Harry Wilfred Fitts.* Chief estimator and designer, New England Structural Co., 110 State St., Boston, Mass. Res. 79 Pembroke St., Newton, Mass. Memb. Boston Soc. C. E. T.S. (1913)

*Arthur Weston Hare.* Previously to July 10, 1913, Estimator for Norcross Bros. Co., Contractors, Worcester, Mass. Res. 13 Northampton St., Worcester. T.S.

*Clarence Kent Hosford, B.S.* Lately Asst. Eng. U. S. Reclamation Service. With St. Croix Paper Co., Woodland, Me. Home address: North Thetford, Vt. Vt. Legislature, 1908. T.S. (1912)

*George Willard Newman, B.S.* Supt. for Cia Corbonifera "Agujita y Anexas", S. A., "Mineral de Lampacitos"; since Jan. 15, 1910. Baluarte, Coahuila, Mexico. Perm. 49 Union St., Keene, N. H. Reply for 1913 dated Mar. 23, 1914, at El Paso, Texas, 620 Stewart St., "Plant at Lampacitos destroyed by rebels, Aug. 1913".

*Thomas Richard Remsen, B.S.* Engineer for George F. Hardy, Mill Architect and Hydraulic Engr., 309 Broadway, New York.



Res. 283 Jefferson Ave., Brooklyn, N. Y. Assoc. Memb. Am. Soc. C. E. T.S.

*Chester Arthur Studwell, B.S.* Since Dec., 1911, Village Engineer, Port Chester, N. Y. Res. 6 Monroe Place. Assoc. Memb. Am. Soc. C. E.; T.S.

#### 1904

**Harold Dearborn Comstock, B.S.** Asst. Eng., U. S. Reclamation Service, on construction and operation of the Pathfinder dam. Engr. in charge of Drainage, North Platte Project, since Nov., 1910. Address Mitchell, Nebraska. Perm. Chelsea, Vt. Assoc. Memb. Am. Soc. C. E. T.S.

**John William Mair.** Engr. for W. T. Mills, Architect, 1911-12; May, 1912-Mar., 1913, Engr. in Bridge Dept., Brazil Ry. Co., Sao Paulo, Brazil. After June, 1913, Engr. J. D. Atchison & Co., Architects, Winnipeg, Manitoba. P. O. Box 1351, Winnipeg. Assoc. Memb. Am. Soc. C. E. T.S.

**Harold Marston Morse, B.S.** Lately with International Paper Co., at Glens Falls, N. Y., and until June, 1913, Supt. Construction for Elkhart Hydraulic Co., Elkhart, Ind; now on design and construction of electrical plants, 1303 Citizens Bldg., Cleveland, Ohio. Assoc. Memb. Am. Soc. C. E. Perm. Hanover, N. H.

**Fred Wheeler Osgood, B.S.** Asst. Engr. for New York Board of Water Supply, plans, estimates and inspection of steel pipe and cut and coverwork for southern Aqued. Dept., until Jan. 1, 1914. Since Feb., Asst. Eng. water filtration plant, Cleveland, O., 421 City Hall. Memb. Munic. Engrs. Soc. of New York. Perm. Dunstable, Mass.

**Carroll Paul, B.S.** (Son of Prof. H. M. Paul, 1875.) Lately at Cavite, Luzon, P. I., in charge of construction and operation of power plants, etc. Promoted to Civil Eng., U. S. N., with rank of Lieutenant from Apr. 23, 1914. Present duty, inside Supt. Public Works Dept., Navy Yard, Phil. Address, Navy Yard, Philadelphia, Pa. Permanent: Bureau of Yards and Docks, Navy Dept., Washington, D. C. Returned, Sept., 1913, from Luzon, via Suez.

**Frank Stewart Perham, B.S.** Formerly Eng. and Supt. of Construction for Bryan & Co., and others, in Jacksonville; for the U. S. Naval Station, Key West, Florida, etc. (1910)

**George Albert Reed, B.S.** Since April, 1907, City Engineer of Barre, Vt. Home address: 34 Orange St., Barre. Lately built a large storage reservoir for the city of Barre, and changed the course of the river by extensive excavation and retaining walls. Sec. of Vermont Soc. of Engrs.

**Howard Leon Ropes, B.S.** Since Feb. 1, 1912, Asst. Supervisor of track, N. Y. C. & H. R. R. R., St. Lawrence Div. Res. 154 Winslow St., Watertown, N. Y. T.S.

**Albert Henry Schilling, B.S.** Contracting Engr. for Berlin Construction Co., Berlin, Conn. Bridges and all steel structural work. Res. 29 Lincoln St., New Britain. Memb. Conn. Soc. C. E.

**Sherman Smith, B.S.** Asst. Eng. Grand Trunk Pac. Ry., Melville, Saskatchewan, Canada. In charge of all engineering work on a division 1,800 miles long. Assoc. Memb. Canad. Soc. C. E. Memb. Am. Ry Engineering Assoc.

**Carl Burpee Worthen, B.S.** Supt. of construction, Los Angeles aqueduct, Calif., 1908-10. Since Dec., 1911, Construction Supt. in Los Angeles Park Dept., R. R. 5. Box 290, Los Angeles, California. T.S.

**\*\*Ralph Carroll Soper, A.B.** Lately Asst. Eng. U. S. R. S., Shoshone project. Drowned, June, 1910. (See Annual for 1910.)

**Harold Miner Hess, B.S.** Since Apr. 1, 1911, Chairman Missouri Actuarial Bureau (Fire Insurance), Pierce Bldg., St. Louis, Mo. Res. 1215 Amherst Place.

**Byron Wynne Matteson, B.S.** Since Oct., 1907, Asst. Eng. with City Engr. of Los Angeles, Cal. Res. Buckingham Apartments, Bixel and Ingraham Sts., Los Angeles Co., Cal. Memb. Engrs. & Architects Assoc. of So. Cal. (1912)

**Oscar Alexander Mechlin, B.S.** Degree of C. E. Geo. Washington Univ., 1906. Since Mar., 1913, Prof. of Civ. Eng. in that university. Member of firm Mechlin & Starr, Architectural Engrs. Wilkins Bldg. Res. 3203 R. St., Washington, D. C. Member Washington Soc. Engrs. Assoc. Memb. Am. Soc. C. E. (1913)

#### 1905

**Owen Long Burdett, B.S.** Since July, 1908, Asst. Engr., Dept. N. Y. State Engr. & Surveyor. In charge of various work,

including construction of over 12 miles of Canal, etc. Res. 756 Ashland Ave., Buffalo, N. Y. Assoc. Memb. Am. Soc. C. E.; T.S.

**Harold Newton Cross.** Formerly with U. S. Reclamation Service; also the Hudson Companies, Hoboken, N. J. Since June, 1912, in City Engr.'s Office, Haverhill, Mass. Home address: Atkinson, N. H.

**Franklin Henry Stowell, B.S.** General Contractor, 1200 Tribune Bldg., Chicago, Ill. Res. 218 So. Kensington Ave., La Grange, Ill. Memb. Western Soc. Engrs. T.S.

**Crosby Tappan.** Construction Eng., Cumberland Valley R. R. (branch of Penna. R. R.). Has built 28 miles of new double track on grade revision; also reinforced concrete culverts and arches, spans from 20 to 100 ft. New Bridge over Potomac River, 1300 ft. long. Just starting arch bridge over Susquehanna River to contain 76,000 yds. of concrete. Address: General office of this road, or 44 5th Ave., Chambersburg, Pa. Memb. Engrs. Soc. of Penna. T.S.

**Morton Owen Withey, B.S.** Asst. Prof. in Rational and Applied Mechanics, and in testing laboratory, University of Wisconsin, Madison, Wis. Res. 1633 Madison St. Memb. Am. Soc. Testing Materials, Eng. Soc. of Wisconsin, and Soc. for Prom. Eng. Educ. T.S. Author of bulletins and papers on tests of reinforced concrete beams and columns. (See *Eng. Record* for July, 1909, and July, 1910.)

**\*\*Nelson Ford McClary, B.S.** Died in Ecuador, So. America, Nov., 1905. (See Annual for 1906.)

*John Francis Doonan, B.S.* Since Oct., 1908, with N. Y., N. H. & H. R. R. Co., on surveys and estimates for grade crossing changes, line revision, etc. Res. New Haven, Conn., 209 York St. Perm. Greenville, N. H. T.S.

*John Hibbard Fellows, B.S.* Graduate in mechanical engineering, Mass. Inst. of Technology, B.S. degree, 1906. Lately Manager of the plant of the Stanley Works, Niles, Ohio; recently at the New Britain (Conn.) Works. Perm. Tilton, N. H.

*George Alexander Lewis.* Served on the engineering force of the Isthmian Canal Comm., August, 1904, to April, 1905. Perm. Hingham, Mass. Supt. Construction on the R. T. Crane Estate, Ipswich, Mass., since April, 1911. Res. 8 Fruit St. (1911)

*Wayne Arthur Perkins, B.S.* Asst. Engr., U. S. Recl. Service. Since March, 1911, in charge of design and construction of Two Medicine dam and structures for Dodson North Canal, Milk River project: address care U. S. R. S., Great Falls, Mont. (1913)

## 1906

**James Seth Adams, B.S.** Before April, 1911, construction engineer for the Western Electric Co. Since then general contractor for building construction, 111 West Washington St., Chicago, Ill. Memb. Western Soc. Engrs. and Chicago Engineers' Club.

**Walter Abbott Conley, B.S.** Designer and estimator, bridge dept., Am. Bridge Co., New York office, 30 Church St., New York City. Res. 116 Essex Ave., Glen Ridge, N. J. Perm. 67 Spruce St., Portland, Me. T.S.

**Charles Francis Goodrich, B.S.** Designer and estimator, American Bridge Co., bridge dept., New York office, since June, 1910. Address: 915 Carteret Ave., Trenton, N. J., or 10 Larchmont St., Dorchester, Mass. T.S.

**Ralph Leonard Libby, B.S.** Engineer for Corrugated Bar Co., care Peden Iron and Steel Co., Houston, Texas. Perm. 235 Washington St., Dover, N. H.

**Hope Richard Messer, B.S.** Since May 1, 1910, Sanitary Engineer, Dept. of Health, Virginia; 1110 Capitol St., Richmond, Va. Perm. Claremont, N. H. Assoc. Memb. Am. Soc. C. E. Memb. Am. Water Works Assoc. and Am. Public Health Assoc.

**Harrie Langdon Muchemore, B.S.** Lately expert aid, Dept. Public Works, Puget Sound Navy Yard, Bremeron, Wash. Contributed article to *Eng. Record*, June 22, 1912, on "Piers Cast as Concrete Shells and Filled in Place." Since Nov., 1912, Engr. for W. W. Anderson & Co., contractors, 107 Grant Ave., San Francisco, Cal. Lately built machinery hall, Panama-Pacific Exposition, the largest bldg., 364 x 964 ft. Engr. in charge of const. 435 ft. "Tower of Jewels", the tallest bldg., for Commary-Peterson Co., 411 Bankers' Investment Bldg., San Francisco. Res. 2843 Green St., San Francisco. Junior Am. Soc. C. E. T.S.

**Harrison George Roby, B.S.** Since Nov., 1912, Res. Eng. in charge of construction of 5400 h. p. hydro-elect. plant, on the Menominee River. At present City Engineer for Iron Mountain,

Mich. Res. 1027 Carpenter Ave. Perm. Whitewater, Wis. Has contract for a concrete arch bridge. Ch. Engr. and Gen. Manager for a small power-plant soon to be built. T.S.

**William Thomas Shaw, B.S.** Asst. Engr., Boston Elev. R. R. until Aug., 1911. Res. Middleboro, Mass., R. F. D., No. 1. Not yet well enough to resume work. Assoc. Memb. Am. Soc. C. E., Memb. Boston Soc. C. E. T.S. (1913)

**Leon Burdett Smith, B.S.** Div. Engr., Bureau of Water, Dept. of Public Works, Pittsburg, Pa. Res. 5447 Stanton Ave. Perm.: Derry, N. H. Since 1912 in charge of design, construction and maintenance of pipe lines and reservoirs. T.S. (1913)

**Myron Ellis Witham, B.S.** Lately in charge of construction of the Standley Lake dam, which will have a total of five million cub. yds. Now Bull & Witham, Cons. Engrs., 1015 Foster Bldg., Denver, Col. Assoc. Memb. Am. Soc. C. E. Consult. Engr for several power companies, the Paradox Valley R. R., etc. (1912)

**Guy Eric Woodward, B.S.** County Supt. of Bridges. City Engr. of Redmond. In private practice. P. O. Box No. 260, Redmond, Ore. Supt. of construction of five steel bridges; designed and superintended construction of Redmond water system (\$40,000); remapped the city, etc.

*Chester Philbrook Smith, B.S.* Second-year course interrupted by ill-health. Draftsman in office of engineer of structures, N. Y. C. & H. R. R., New York City, since April 1, 1913. Res. 77 Buena Vista Ave., Yonkers, N. Y. Perm. Norridgewock, Me., Care Mrs. Cora A. Smith. (1913)

*Frank Nelson Tinker, B.S.* (Norwich Univ.) Student in residence, THAYER SCHOOL, second-year course incomplete. Address, Sept., 1913, 129 East 59th St., New York City.

*George Ralph Colson, B.S.* Resigned Aug. 1, 1913, as Res. Engr. for Caribbean Const. Co. Until March, 1914, member firm of Murphy, Rivinac & Co., Inc., New York City. T.S. Perm. North Billerica, Mass.

*Harold Morton Haskell, B.S.* Assistant to the City Engineer, Manchester. Address: 66 Appleton St., Manchester, N. H.

*Fletcher Ames Hatch, B.S.* Since July, 1913, Asst. Chief Engr. Santa Marta Div., United Fruit Co., in charge

irrigation system for 2500 hectares of new plantings. Address: Santa Marta, Colombia, South America. Perm. care Mrs. A. C. H. Stearns, 66 Glover Ave., Atlantic, Mass.

*Walter Earle Hawley, B.S.* Designer and estimator for Post & McCord, 101 Park Ave., New York City. Res. 6620 20th Ave., Brooklyn, N. Y. Perm. Norwich, Vt.

*Harold D. King, B.S.* Lately Assistant U. S. Coast and Geod. Survey, in charge of primary triangulation related to the 98th Meridian and of transcontinental precise levelling, and main scheme of triangulation, Philippine Ids.; also engaged on determination of gravity throughout the U. S. Transferred to Lighthouse Service, May, 1911; since April 15, 1912, Inspector 6th Lighthouse District, Charleston, S. C. Home Address, 22 Meeting St., Charleston, S. C. T.S.

#### 1907

**Augustine Haines Ayers, B.S.** Principal Asst. Engr. for Southern Alberta Land Co., Ltd., Medicine Hat, Alberta, Canada, until May, 1913. Perm. No. 8 State St., Concord, N. H. After that, Supt. of Construction, U. S. Reclamation Service, Northern Div.; one year on the St. Mary project; since July 1, 1914, in charge of canal building, Sun River project. Address: care of U. S. R. S., Fort Shaw, Mont. Assoc. Memb. Am. Soc. C. E. T.S. In September reported to be Engineer, Sun River Project.

**Charles Luther Bourne, B.S.** With the H. P. Converse Co., Boston, Nov., 1908, to Sept., 1912. Lately inspector on development of a new part of Hopedale, Mass., for the Draper Co. Perm. 121 Woodbine St., Auburndale, Mass.

**Neil Stanley Buckbee, B.S.** Since Mar. 1, 1913, Engr. for Braas Bros. Co., general contractors, Niagara Falls, N. Y. Res. 538 Fifth St., Niagara Falls, N. Y.

**Chester McKenzie Everett, B.S.** Estimator, in the office of Hazen & Whipple, Consulting Engrs., 42d St., Bldg., New York City. Res. 159 West 131 St. Perm. Champlain, N. Y. (1913)

**William Henry Fox, B.S.** Since Sept., 1912, Asst. Engr for the city in charge of sewer design; reinf. concr. sewers up to ten ft. diam., etc. Since April, 1914, engineer for Townsend & Fleming, Landscape Architects, 1318 Prudential Bldg., Buffalo, N. Y. Perm. 80 Pearl St., Clinton, Mass.

**Vicente Molina, B.S.** In practice as surveyor and Civil Engr., Merida, Yucatan; Calle 63, No. 469. From Feb., 1909 to Jan., 1913, Chief Engr. United Rys. of Yucatan, system of 550 miles; reconstructed old lines; prepared plans for and constructed two new lines. Assoc. Memb. Am. Soc. C. E. (1913)

**Fred Foster Parker, B.S.** Lately Asst. Engr. and inspector to the Engr. and Supt. of Bldgs., Dartmouth College, and Asst. Supt. Parker & Young Co., Lisbon, N. H. Since May, 1913, plant manager, Winslow Bros. & Smith Co., tanners; since Feb., 1914, Manager Norwood Real Estate Trust, Norwood, Mass. Res. 56 Hoyle St.

**Clarence Irving Peckham, B.S.** (Brown Univ.) Asst. Engr. for Public Service Comm., New York City, in 1908 and 1909. Now Asst. Eng. for the N. Y. State Highway Comm. Perm. 30 Gurney St., East Providence, R. I.

**Verney Warren Russell, B.S.** U. S. Reclamation Service. After Sept., 1910, Asst. Engr. on the Shoshone dam; season of 1914, Resident Engr., Sun River Project, constructing 18 miles main canal, 2 pipe drops and 9 culverts all of reinforced concrete. Res. Cody, Wyoming. Perm. Norwich, Vt. Assoc. Memb. Am. Soc. C. E. T.S.

**Watson Burchard Smith, B.S.** Interstate Commerce Comm., Div. of Valuation, Kansas City, Mo. Second Asst. field engr. in charge of party of 17. Perm. 2211 St. Mary's Ave., Omaha, Neb.

**Carlton Manson Soule, B.S.** Estimator and designer in the office of Eng. of Bridges, B. & O. R. R., Baltimore, Md., 4008 Norfolk Ave., Forest Park, Baltimore, Md. Perm. 70 Putnam St., E. Weymouth, Mass.

**\*\*Harry Allen McMore, B.S.** Lately with the General Fireproofing Co. Died Oct. 20, 1909. (See Annual for 1910.)

**Herbert Leslie Boynton, B.S.** With Chi. & N. W. Ry., rodman, topographer, and instrumentman; since Oct., 1908, on construction of new terminal, Chicago. Res. 608 Church St., Evanston, Ill.; perm. 16 Sixth Ave., Haverhill, Mass. Junior Memb. Western Soc. C. E. (1910)

**Joseph Theodore Chase, B.S.** Mgr. Roanoke Rapids Power Co., Box H, Roanoke Rapids, N. C.; perm. 151 Beech St., Holyoke, Mass.

*Henry George Porter, B. S.* With Hazen and Whipple, 42d St. Bdg., New York City. Since May 1, 1912, Res. Engr. construction of additional filters at Yonkers, N. Y. Res. 87 Warburton Ave., Yonkers, N. Y. Home, Lisbon, N. H. Assoc. Memb. Am. Soc. C. E. T.S.

*Raymond Collins Wood, B.S.* Draftsman, Murphy Varnish Co., Newark, N. J. Res. 22½ Chestnut St. Home address: 11 Summit Ave., Haverhill, Mass.

## 1908

**Samuel Colcord Bartlett, B.A.** Lately rodman, draftsman, and instrumentman, Grand Trunk Pacific R. R., and other rys. in Brit. Col. and Wash. Also as officer on U. S. C. & Geod. Survey Str. Yukon in Cook's Inlet, Alaska. Perm. Hanover, N. H. T.S. Since March, 1911, Supt. of construction for Hastings Pavement Co., 25 Broad St., New York City.

**Ray Wilbur Brown, B.S.** Lately transitman for Arthur T. Safford, Civ. Eng. on protection of water supply at Fall River, Mass., and now assistant in the Eng'g Dept. of the City. Res. 268 Locust St.

**Nathaniel Francis Davis, B.S.** Assistant Manager for the Davis Paper Co., Contoocook, N. H. Res. Contoocook.

**John H. Dunlap, B.A.** Assistant Prof. of Hydraulics and Sanitary Engineering, State Univ. of Iowa, Iowa City, Iowa, since Sept., 1911. Res. 311 Brown St., Iowa City. T.S. Iowa Engr. Soc. and Ill. Water Supply Assn.

**Arthur John Ela, B.S.** Asst. U. S. Coast and Geod. Survey, until 1910. T.S. Lately in employ of Stone & Webster, Civ. Engrs. and Contractors, Seattle, Wash. Asst. Superintendent, U. S. Lighthouse Service, with headquarters at Ketchikan, Alaska (extreme southeastern part).

**Samuel Francis Garvin, B.S.** Oct., 1912, to Apr., 1913, with Knickerbocker Portland Cement Co. Now Asst. Engr. Asbestos — Asbestic Co., Asbestos, Que. Perm. Sanbornville, N. H.

**Harry Matt Gray, B.S.** Oct., 1912, to Apr., 1913, Res. Engr. on construction of Poughkeepsie filtration plant, for Hazen & Whipple of New York. Since March, 1914, Designing Engr.,



Dept. of Streets and Engineering, Springfield, Mass. Res. 11 Greenleaf St. Assoc. Memb. Am. Soc. C. E.

**Fred Bacon Greenleaf, B.S.** Member of firm J. A. Greenleaf & Sons Co., Inc., Contractors and Builders, Auburn, Me. Lately Div. Supt. for the H. P. Cummings Co., on construction of new plant of International Paper Co. at Wilder, Vt., Palmers Falls, and Glens Falls, N. Y., etc., and addition to mills at Millinocket, Me.

**Reuben Hayes, B.S.** Lately with Post & McCord, New York City. Perm. Dover, N. H., R. F. D. Madbury, N. H. Since March, 1911, Asst. Engr., office of Ch. Eng. M. W., Sou. Ry. Co., Munsey Bldg., Washington, D. C. T.S.

**Roy Mullins, B.S.** Res. Eng., Chi. & Erie Ry., Feb., 1912, to Mar., 1913. Since Apr., 1913, Right of Way Engineer, Dept. of Public Roads, State of N. J. Since August 1st, Division Engr. in charge of the Southern division, covering the south seven counties of New Jersey. P. O. Box 83, Collingswood, N. J. Perm Baldwinville, Mass. Member N. J. State Soc. of County Engineers. Member Engineers' Club of Trenton.

**Harold Parker, B.S.** Supt. of construction of large reinforced concrete hospital for United Fruit Co., Quirigua, Guatemala, 1912-13. Oct., 1913, to June, 1914, const. engr. on hospital in Santa Marta, Colombia, S. A. After that on reinforced concrete buildings at Almirante, Panama. Perm. 58 Middle St., Portsmouth, N. H. Memb. Nat. Assoc. Cement Users.

**Russell Hastings Peck, B.S.** Since Oct., 1910, Engr. of Palmer Land & Water Co., Palmerton, Pa. Perm. Mt. Vernon, N. H. T.S. Now associated with the New York Bureau of Municipal Research. 855 Riverside Drive, "The Woodbury", New York City. Articles in *Engr. News*, Mar. 20, 1913, p. 574; and lately on Borough Engineers' filing system for plans and on making water tight joints on sewer pipes.

**Henry Tyler Pierce.** Asst. Engr. Puerto Rico Irrigation Service, since Oct., 1910, Juana Diaz, P. R.; res. engr. on the Coamo dam. (1911)

**Frederick William Welch, B.S.** Asst. Engr. U. S. Reclamation Service, Palouse Project. Care U. S. R. S., Sunnyside, Wash. Formerly Asst. Engr. on the Laguna dam, N. M. Perm., Spirit

Lake, Idaho. Instructor in THAYER SCHOOL OF CIVIL ENG., July, 1908, to Sept., 1909. T.S.

*Herbert Davis Hinman, B.S.* Under the Panama Canal Comm., since July, 1907. Lately Supt. of construction Pedro Miguel locks; since Aug., 1912, engr. in charge of construction of the Pacific Terminals. Corozal, C. Z., Panama. Perm. Groveton, N. H. Assoc. Memb. Am. Soc. C. E. (1913)

*William Rice Kimball, B.S.* Since Feb. 1, 1908, with Jos. T. Ryerson & Son, eng. dept., Chicago, Ill. Res. 623 No. Grove Ave., Oak Park Ill. T.S. Supt. in charge of installation of riveted steel pipe lines in Mexico, Utah, and Tennessee.

*Merton Clark Knapp, B.S.* Asst. Eng. U. S. Recl. Service, Sun River project, Fort Shaw, Montana. Perm. 23 N. Lincoln St., Keene, N. H.

*Nathaniel Hobbs Knight, B.S.* Member of the firm, Knight & Merrill, The Ontio, Ogunquit, Me., or North Berwick, Me. 1911-13 Asst. and Instructor in Physics, Tufts College. Home address: 60 Pearson Rd., W. Somerville, Mass. Summer address, Hotel Ontio, Ogunquit, Me. T.S.

*Clarence Erwin Langley, B.S.* From Sept., 1907, under Isthmian Canal Comm., and, since May 1, 1912, supervisor of construction in charge of masonry and excavation, Gatun Locks, until Aug., 1913. Until Dec. with Morgan Engineering Co., Dayton, O. After that Asst. Eng. with Santa Marta Ry. Co., Santa Marta, Colombia. Assoc. Memb. Am. Soc. C. E. T.S.

*Charles Reed Main, B.S.* Graduate, 1909, in mech. eng., Mass. Inst. of Technology. With Chas. T. Main, Mill Engr., 201 Devonshire St., Boston, Mass. Business Manager of Western Office, Great Falls, Mont. P. O. Box 1004. Memb. Boston Soc. C. E.

*William Maddock Silleck.* With George H. Fuller Co., Bldg. Construction, 111 Broadway, New York City. Manager Olean Office. P. O. Box 566, Olean, N. Y. Perm. Smiling Valley Farm, Wilton, Conn. T.S.

*\*\*Robert Houghton Pearson, B.S.* Lately under the Isth. Canal Comm., as general foreman of concrete placing on the Gatun Locks, Gatun, C. Z. Died Jan. 4, 1911. (See Annual for 1911.)

## 1909

**George Fredson Baine, B.S.** Lately in Chief Engrs. office, Mo. Pac. Ry., and Asst. Engr. on No. Kans. Division. Married, Sept., 1912, and left, via England, for Buenos Aires, as Engr. for Jacobs & Davis of London, Eng. Address: Oficina del Subteraneo, F. C. O., Calle B Mitre 2961, Buenos Aires, So. America. Engaged on railroad tunnel work. Perm. Berlin, Mass. T.S.

**Arthur Bradley Barnes, B.A.** Master Mechanic, Barnaby Mfg. Co., Fall River, Mass. Memb. Boston Soc. of Civ. Engrs. (1912). T.S.

**Richard Stevens Danforth, B.S.** Heavy contract work with L. F. Gerdetz, Portland, Oregon, until Jan. 1, 1913. Since then Sec. and Manager of Hood Electric Co., Hood River, Ore. Perm. 29 Pleasant St., Gardiner, Me. (1913)

**Ralph Gardner Knight, B.S.** Instructor in civil engineering, Pennsylvania State College, Oct., 1909, to June, 1912, and in Univ. Penna., Sept., 1912, to Mar., 1914. After that junior engr. Public Service Comm., New York City. Res. 77 Madison Ave., Jamaica, N. Y. Perm. Randolph, Mass. T.S.

**Ernest Avery Lincoln, B.S.** With the U. S. Geol. Survey to May, 1910. With San Diego Consolidated Gas & Elect. Co., on construction of power plant and underground conduit, under H. M. Byllesby & Co., Engrs. Since Feb., 1914, Civil Engineer and Land Surveyor, 29 Bedford St., Fall River, Mass. Res. 457 June St. T.S.

**Raymond Robb Marsden, B.S.** Instructor in THAYER SCHOOL OF CIVIL ENGINEERING, year 1909-10. Resident Engr., Paper Mill Const., Big Island, Va., for H. S. Ferguson, Civil and Hydraulic Engr., 200 Fifth Ave., New York City. Perm. 26 Dudley Ave., Utica, N. Y. T.S.

**Frederick Herman Munkelt, B.S.** Since May 1, 1914, member of the sales force of the Petroleum Iron Works Co. With Geo. P. Bard, Dart. Coll., 1889. Res. 427 Bryson St., Youngstown, Ohio. Jun. Am. Soc. C. E. T.S. Lately with Am. Bridge Co.

**Earl Thomas Richards, B.S.** With the Benj. F. Smith Construction Co., mill contractors, as Supt. of construction, including reinforced concrete. 22 Mason St., Pawtucket, R. I. Res. 273 Broadway. T.S.

1909

**Charles Potter Richardson, B.S.** Since August, 1912, Asst. Engr. on track elevation, Rock Island R. R. lines in Chicago, Ill. Expected to require eight years. Address: 6546 Stewart Ave., Chicago, or 57 Silver St., Dover, N. H. Assoc. Memb. Am. Soc. C. E. Memb. Am. Railway Engineering Assoc. T.S.

**Harold Ordway Rugg, B.S.** Lately instructor in civil engineering, James Millikin Univ. Instructor, general engineering drawing, Univ. of Illinois, Engineering bldg., Urbana, Ill. Perm. 142 Day St., Fitchburg, Mass. Memb. Soc. Prom. Eng. Educ., and Ill. Soc. Eng. and Surveyors. (1912)

**Sidney Lee Ruggles, B.A.** Junior Topographer U. S. Geol. Surv., 1909. Instructor in Surveying Pennsylvania State College, 1909-10. Instructor in Surveying and Graphics, THAYER SCHOOL OF CIV. ENG., Sept., 1910, to date. Res. 6 Sargent St., Hanover, N. H. T. S.

**Park Washburn Stickney, B.S.** Asst. Engr., North. Pac. Ry. on const. of terminal bldgs., Mississippi St., St. Paul, Minn. Office, 514 N. P. Bldg. Perm. 410 9th Ave. No., Fargo, N. D. T.S.

**James Hammond Stone, B.S.** Formerly in charge of various construction in Cuba and Santo Domingo. Res. Engr. in charge of construction waterworks plant,—reservoir and electric pumping station, Madisonville, Ky. Res. 210 Union St. Perm. R. F. D. 2, Concord, N. H. Assoc. Memb. Am. Soc. C. E. Memb. Mass. Highway Ass'n. T.S. (1913)

**Philip Laforrest Thompson, B.S.** With Hastings Pavement Co., 25 Broad St., New York City. Res. 81 Saratoga Ave., Yonkers, N. Y. Perm. St. Johnsbury, Vt. T.S.

**Frederick Sampson Weston, B.S.** During three intermediate years Asst. Engr. for J. G. White & Co., of New York, on construction of Philippine railroads and bridges, on Negros and Cebu. Mar., 1912, to Jan., 1913, Terminal Engr. Madeira-Mamore Ry., Porto Velho de Santo Antonio, Brazil. June 1 to Jan. 1, 1914, Res. Engr. Jacksonville Terminal Co., Jacksonville, Fla. Since May, temporarily with Metcalf & Eddy, Boston, Mass. Perm. Middleboro, Mass. Assoc. Memb. Am. Soc. C. E. T.S.

**Willard Choate Winkley, B.S.** Draftsman, Lockwood, Green & Co., Architectural Engrs., 93 Federal St., Boston, Mass.

Since July 1, 1912, in charge of reinforced concrete department at the Chicago office. Address: First National Bank Bldg., Chicago, Ill., care Lockwood, Green & Co. Perm. 7 W. Concord St., Dover, N. H. T. S. (1912)

**\*\*Richard Hazen, B.A.** Lately with Hazen & Whipple, Consulting Civil Engrs., 42d St. Bldg., New York City. Died Aug. 13, 1911. (See Annual for 1911.)

*Frederick Kent English, B.S.* Home address: 51 Main St., Wareham, Mass. Since June 1, 1912, chief of plane table party for Directors of the port of Boston, on railroad location. Res. 290 Columbus Ave., Boston, Mass. (1912)

*Ralph William Hazen, B.S.* Formerly Asst. Engr. in the Philippine Service, Manila. Later with U. S. Reclamation Service, Browning, Mont. Now Supt. Const., Hastings Pavement Co., 25 Broad St., New York City. Perm. Whitefield, N. H. T.S. Jun. A. S. C. E.

*Roger Frank Hill, B.S.* Graduated from Mass. Inst. Tech., 1910. Eng. for the A. J. Smith Construction Co. of Detroit, Mich.; 18 Campan Bldg. Memb. Mech. Eng. Soc. M. I. T., and Detroit Eng. Soc. Perm. Tilton, N. H.

*Charles Arthur Luck.* General Manager of the Asphalt Block Pavement Co., 840 Ohio Bldg., Toledo, Ohio. Res. 416 Macken St. Memb. Toledo Society of Engrs. and Ohio Engineering Soc., and T.S.

*Harold Arthur Morey, B.S.* With the International Paper Co., Glens Falls, N. Y. Res. So. Glens Falls.

*Walter Clarence Rich, B.S.* Formerly Asst. Engr. in charge of construction of highways. State of New York. Since Feb., 1914, Contractor under name of The Rich Construction Co., Inc., contracts for six miles of brick and concrete pavement. Address: Holley, N. Y. T.S.

*Carl Wilbur Ross, B.A.* Head draftsman, Bureau of Water Works, 211 City Hall, Portland, Oregon.

*Alva Bruce Rutherford, B.S.* Lately Supt. for the Asphalt Block Pavement Co., Toledo, Ohio. Perm. Waddington, N. Y. T.S. Construction of pavements throughout Ohio. Since Sept., 1913, with Booth & Flinn, Ltd., Pittsburgh, Pa.: constructed plant

for Am. Reduction Co. Since Feb. on construction of concrete approach to the Point Bridge. Res. 1107 Greenfield Ave., Pittsburgh.

*Frederick Edw. Schilling, B.S.* Supt. of construction for Turner Construction Co., 312 Prudential Bldg., Buffalo, N. Y. At present in charge of erection of grain elevator for Ralston Purina Co., Buffalo, N. Y. Perm. 68 Glen St., New Britain, Conn. T.S.

### 1910

**Benjamin Ayer, B.S.** Supt. of the Monatiquot Rubber Works Co., French Ave., So. Braintree, Mass. Perm. 135 School St., Belmont, Mass. T.S.

**Delmont Rockwood Bradley, B.S.** With Geo. F. Hardy, Mill Engr. and Architect, 309 Broadway, New York City. Perm. 163 Washington St., Gloucester, Mass. T.S.

**Arthur Leet Buxton, B.S.** Asst. Engr. for Westinghouse, Church, Kerr & Co., of New York City, 1911-12; then with Thompson-Starrett Co., Newcastle, Pa. Since Sept., 1913, deputy smoke inspector, Cincinnati, Ohio. Res. 518 E. Fourth St. Perm. 108 Dartmouth St., Springfield, Mass. T.S.

**Frank Gordon Cook, B.S.** Asst. Engr., No. Pac. Ry. in charge of Dakota Div. 750 miles of main track and branch lines, Eng. Dept., N. P. Ry., Jamestown, No. Dak. Perm. 110 State St., Concord, N. H. T.S.

**Oliver W. Cushman, B.S.** Lately Asst. Engr., Westinghouse, Church, Kerr & Co., New York City. Since Aug. 1st, 1914, with the Edison Electric Illuminating Co., of Brooklyn. Res. 311 Adelphi St., Brooklyn; perm. Lincoln Chambers, Manchester, N. H.

**Benjamin Harmon Dudley, B.S.** Since Oct., 1912, with N. Y. C. & H. R. R. Co., as instrumentman and now as draftsman at Albany, N. Y., district engr's. office. Perm. 76 Park St., Malone N. Y. T.S. (1913)

**Robert Rutledge Gould, B.S.** Lately checker, Am. Bridge Co., of New York. Since May 1, Asst. Engr., N. Y. Munic. Ry. Corp., on 3d tracking and extension of Brooklyn Rapid Transit lines. Res. 533 Tinton Ave., New York City. T.S.

**Winthrop Lamson Smith, B.S.** Transitman Maint. of Way Dept. N. Y. C. & H. R. R. Co., 145 Washington St., Buffalo, N. Y. Home address, 127 W. Huron St., Buffalo, N. Y.

**Harry Abbott Ward, B.S.** Asst. Engr. in office of Turner Construction Co., of New York; 312 Prudential Bldg., Buffalo, N. Y.; address, 150 Hodge Ave., Buffalo, N. Y. Perm. 25 Arlington St., Lynn, Mass. T.S.

*Albert James Wheeldon, B.S.* No report since 1910.

*Frank Stearns Austin, B.S.* Supervisor of track, Boston & Albany R. R., Union Station, Worcester, Mass.; perm. 38 Sanderson Ave., Lynn, Mass.

*John Cleveland Beebe, B.S.* C. E. from Univ. of Wisconsin, graduate in hydraulics, June, 1910. In charge of stream gauging, Dist. No. 1, U. S. Forest Service, 1911-12. With Idaho Irrigation Co., Ltd., Richfield, Idaho. Perm. care S. D. Beebe, Hampden, Mass. Jun. Am. Soc. C. E. Memb. Mont. Soc. Engrs.

*Ralph Byron Clement, B.S.* Asst. Engr., Central N. H. Power Co., on the Smith River Valley and Croydon projects. After Sept. 20, student, Regents scholarship in hydraulics, University of Wisconsin, Madison. Perm. 12 George St., Chelsea, Mass.

*Fred Ernest Hanson, B.A.* Lately with Real Estate Dept., N. Y., N. H. & H. R. R. Co. Oct., 1913-Jan., 1914, draftsman, Signal Dept. Since then, Resident Engr., Valuation Dept. Res. 182 Atwater St., West Haven, Ct. Perm. Springvale, Me.

*John Edw. Hansbury, B.S.* No report since May, 1909, when he was track apprentice on the Mo. Pac. Ry.

*Arthur Lowell Herrick, B.S.* Graduate in Hydraulics from Univ. of Wisconsin, with degree of C.E., in June, 1910. In charge of the hydraulic work under the Mech. Engr. Dept., at Columbia University, New York City. Perm. 10 Forest St., Gloucester, Mass. (1912).

*Hasen Kimball Hibbard, B.S.* Started as instrument-man on the Atch., Top. & St. Fe R. R. County Engineer, Montgomery Co., Kansas, building roads, bridges, and drainages. Res. 610 East 5th St., Cherryvale, Kas. Kansas Soc. Civil Engineers.

*Fred Gray Leary (B.A. Colgate Univ.), B.S.* Previous to April, 1912, in charge of water main construction from Mt. Hood

to Portland, Oregon, for the city. Since Supt. of Const. on concrete dam at Bend, Ore.; Supt. for Pacific Bridge Co. on const. of sewer in Portland, Ore.; and with the Boyajohn Arnold Co. on Building Construction. At present with City of Portland, Water Dept. Res. 1018 Woodward Ave., Portland, Oregon. Perm. Hamilton, N. Y.

*Dwight Thornton Reed*, 2 Lovell St., Portsmouth, N. H. Reports from 402 Rondo St., St. Paul, Minn. (1912).

*Harold Cushing Whitmore*, B.S. Since 1912, Asst. Engr., Somerset Dam, Power Construction Co., Mountain Mills, Vt., and with Shelburne Falls Construction Co., Mass. Res. 91 Baker St., Lynn, Mass. Jun. Am. Soc. C. E.

### 1911

**John Anthony Cassidy, B.S.** Lately with the Singer Mfg. Co., Elizabethport, N. J., 242 E. 3rd St. Since July, 1913, Designer for Public Service Commission on New York City Subway. Brooklyn, N. Y. T.S.

**John Warren Childs, A.B.** Jun. Engr., U. S. Reclamation Service, Sun River Project, Fort Shaw, Mont., his present address. Perm. Henniker, N. H.

**Harry Burns Dore, B.S.** During 1912 with Harbor Comm. of San Francisco. Now with N. E. Structural Co., East Everett, Mass. Res. 78 Mt. Vernon St., E. Somerville. Perm. 53 Richards Ave., Portsmouth, N. H. (1913)

**Peter Staub Dow.** Assistant to Professor Hazen in the dept. of engineering and graphics, Dartmouth College, Hanover, N. H. Perm. 416 Second St., Knoxville, Tenn. T.S.

**Whitney Haskins Eastman, B.S.** Asst. Supt. of Linseed Oil Mfg. plant for the Midland Linseed Products Co., Edgewater, N. J. Res. 387 Undercliff Ave., Edgewater, N. J. T.S.

**Fred Sumner Hanson, Jr., B.S.** In 1911-1912 Field Asst. for Bureau of Engineering Statistics under Prof. Geo. F. Swain. Perm. 93 Myrtle St., Somerville, Mass. During 1911-1912 on the boundary survey, Panama-Costa Rica. Indirectly reported to be Supt. of Construction for the Aberthaw Construction Co., Boston, Mass.



**Henry Roger Harrison, B.S.** In charge of Denver office of the Whitney Co., of New York; Denver, Colo. Res. 1457 Vine St. (1912)

**Edward Wyman Higbee, B.S.** Reported to be with American Tel. & Tel. Co., Engr. Dept., New York. Perm. 4 Rhode Island Ave., Newport, R. I. T.S. (1912).

**James Warren Ingalls, B.S.** Instrumentman, Maine Central R. R., since April, 1913. Care Eng. Dept., Portland, Me. Chief of Field Party on Physical Valuation, Waterville to Bangor. Perm. 76 Baker St., Lynn, Mass. Jun. Am. Soc. C. E. T.S.

**Edson Warren Keith, B.S.** Since Oct. 14, 1912, Instrumentman for City Engr., Manchester, N. H. Address: 28 Adams St., Manchester, N. H. Res. West Wareham, Mass.

**Walter Harrison Krafft.** In Real Estate business with Ross, Krafft Co., Inc. Res. 1070 Bergen St., Brooklyn, N. Y.

**Ralph Wilbur Noyes, B.S.** With the Stone & Webster En'g Corporation as inspector, etc., on the plant of the Mississippi River Power Co., Keokuk, Iowa. Perm. Whitefield, N. H., care of Dr. R. E. Wilder. T.S. (1913)

**Robert Emerson Parker, B.S.** Junior engr. with the Abertaw Construction Co., 8 Beacon St., Boston, Mass. Has lately designed several factories and office buildings. Perm. 26 Pratt St., Reading, Mass. T.S. Memb. Bost. Soc. of C. E.

**Earle Howard Pierce, B.S.** Since Mar., 1913, plant manager, Franklin Mill, Am. Felt. Co., Franklin, Mass. Home, 575 Watertown St., Newtonville.

**James Marsh Porter, B.S.** In manufacturing business with Waitt & Bond, Inc. Address, 219 East 17th St., Brooklyn, N. Y.

**Maurice Readey, B.S.** Since June 24, 1912, Estimating,—Simmons Pipe Bending Works, 40 Mechanic St., Newark, N. J. Perm. 2288 Elm St., Manchester, N. H.

**Fletcher Rogers, B.S.** Supt. of Construction for the Hastings Pavement Co., 25 Broad St., New York City; executing contracts in vicinity of New York and in Ohio and Michigan. Perm. Demarest, Bergen Co., N. J. T.S.

**Ralph Arthur Sherwin, B.S.** With the Aberthaw Construction Co., at home office, 8 Beacon St., Boston, Mass. Perm. 16 Summit St., Orange, Mass. T.S.

**Edgar Mills Steward, B.S.** Supt. of Construction for the Asphalt Block Pavement Co., 842 Ohio Bldg., Toledo, Ohio. Perm. 517 East 60th St., Chicago, Ill.

**Harry Artemas Wells, B.S.** Lately with Geo. F. Hardy, Hydraulic and Mill Engr., New York City. Since Dec., 1912, Supt. of Bldgs. and Engr. for Dartmouth College, supervising a plant of forty-five bldgs., and new construction. Perm. 13 Redington St., Littleton, N. H. T.S.

**Abiel Wayland Wood, B.S.** Lately with Hazen & Whipple, Consulting Engrs., New York City. Since Mar., 1913, with R. S. Weston, Con. Sanitary Engr., Boston, Mass. Since July, 1914, in business with P. A. Wood, Lumber, Worcester, Mass. Perm. 9 Shattuck St.

*Geo. E. Chamberlin, B.S.* Failed to qualify for graduation at close of second year. No report.

*Joseph Matthews Smyth.* Failed to qualify for graduation at close of second year. No report.

*James Joseph Kerley, B.S.* Lately with Blackwell & Buck, Cons. Engrs., 49 Wall St., New York City. In Sept. on construction, water power plant, North Ontario Light & Power Co., Ltd., Fountain Hall, (via. Cobalt) Ontario. Perm. 71 High St., Ballston Spa, N. Y. Joined class of 1915.

*Joseph Ritchie Kinney, B.S.* Supt. of Construction for the Harlem Contracting Co., 2 Rector St., New York City; asphalt block pavements. Perm. 187 Lincoln St., Winthrop, Mass. T.S.

*Guy Maxwell Perry, B.S.* Assistant and Supt. on Construction Work for the Elliot C. Brown Co., of New York City, 70 East 45th St., Grand Central Terminal Bldg. Extensive private bldg. construction on Long Island. Home address, 1526 Plymouth St., Bridgewater, Mass.

*Harold Wesley Robinson, B.S.* Since Sept., 1913, student, Union Theol. Seminary, Broadway and 120th St., New York City. During summer of 1914 acted as Asst. Pastor of First Presbyterian Church, Newburgh, N. Y. Perm. R. F. D. 2, Warren, Vt.

*Lewis Hamilton Sisson, B.S.* With the Racquette River Paper Co.—duties in connection with the Sulphite plant, and as travelling agent. Perm. 53 Elm St., Potsdam, N. Y.

*Perley Nelson Storer, B.S.* Since Jan., 1913, inspector for the Underwriters' Bureau of New England, 141 Milk St., Boston, Mass. Perm. 918 State St., Portsmouth, N. H. Assoc. Memb. Nat'l Fire Protective Assoc.

## 1912

**Sydney Clifford Bean, B.S.** In the office of Aberthaw Construction Co., 8 Beacon St., Boston, Mass. Res. 175 North St., Weymouth, Mass. Perm. 19 Pelham St., Methuen, Mass. T.S.

**John Jackson Boynton, B.S.** Supt. of Construction, Harlem Contracting Co., 2 Rector St., New York City. Res. 144 West 94th St., New York City. T. S.

**Clarence Eugene Ellsworth, B.S.** During three intermediate years and now, Dist. Engr. in the Water Resources Branch of the U. S. Geol. Survey in Alaska. Address the office, Washington, D. C. Home: Wentworth, N. H. Joint author of reports on mineral resources and stream flow of the Yukon-Tanana region, 1908 to 1910. Since May 1, 1914, in charge of hydrometric studies of the Ohio River and tributaries in connection with a Sanitary Survey of the Ohio Basin by the U. S. Public Health Service. Assoc. Memb. Am. Soc. C. E. Memb. Washington Soc. of Engrs.

**Harold Lewis English, B.S.** Since Feb., 1914, Civil Engineer with Interstate Commerce Commission, Division of Valuation, Washington, D. C. Perm. Lisbon, N. H. Jun. Am. Soc. C. E. T.S.

**Willard Merrill Gooding, B.S.** Lately with R. S. Weston, Consulting Sanitary Engr., 14 Beacon St., Boston, Mass. Since May, 1913, Engr. for Berlin Water Co., Berlin, N. H. Perm. 106 Spruce St., Portland, Me. Memb. New England Water Works Assoc. T.S.

**Julian Osgood Goodrich, B.S.** In business, Civ. Eng. and Surveyor, 72 Barre St., Montpelier, Vt. Jan. to May, 1914, on High Tension transmission lines for C. H. Tenney Co., Boston. Perm. So. Royalton, Vt. Memb. Vt. Soc. Engrs.

**William Davis Gordon, B.S.** Construction foreman for H. L. Stevens & Co., of Chicago, Ill., Sioux City, Iowa. Res. 2719 Jackson St. (1912)

**Alfred Albert Hormel, B.S.** With George F. Hardy, Mill and Hydraulic Engr., 309 Broadway, New York City. June, 1913, to June, 1914, in charge of construction Pulp Mill for Chesapeake Pulp & Paper Co., West Point, Va. Since June 1, 1914, at office on design of paper mill. Perm. 230 M St., So. Boston, Mass. T.S.

**Warren Fuller Kimball, B.S.** Until July surveyor and, since, inspector for Assoc. Factory Mutual Fire Ins. Cos., 810 Denckla Bldg., Phila., Pa. Perm. 30 Lee St., Cambridge, Mass. Memb. National Fire Protection Assoc. T.S.

**Clyde Earle Locke, B.S.** Asst. in Buffalo office of the Turner Construction Co., of 11 Broadway, New York City. 316 Prudential Bldg., Buffalo, N. Y. 'Expects to make a change after Oct., 1914. Perm. Orleans, Vt. T.S.

**Leon Craig Marshall, B.S.** U. S. Forest Service, Washington, D. C. After Mar. 1, 1913, on the Savannah, Georgia, Area. Since May 1, 1914, on the White Mountain Reservation. Perm. Hanover, N. H.

**Harold Warren Pease, B.A.** Lately with Geo. F. Hardy, Hydraulic Engr., of New York. After Oct., 1913, with the U. S. Coast and Geod. Survey; since Feb., 1914, Observer in charge of the Magnetic Observatory, Vieques, Porto Rico. Perm. 297 Grove St., Fall River, Mass.

**Frank Sumner Whitcomb, B.A.** Since Dec., 1913, Asst. Engr. Southern Ry. Co., 907 Murray Bldg., Washington, D. C. Res. 1870 California St., N. W. T.S.

**Riley Tilton Young, B.A.** With H. S. Ferguson, Mill and Hydraulic Engr., 200 Fifth Ave., New York City. Since Aug., 1913, Asst. Engr on const. of sulphite pulp mill at Chandler, Gaspe Co., P. Q. Perm. Littleton, N. H. T.S.

*Harold Andrew Campbell, B.S.* Service under the Isthmian Canal Commission until July, 1912. With Vermont Hygeia Ice Co., 1913 and 1914, Dyckman St. and Hudson River, New York City.

*Kenneth Johnston Knapp, B.S.* Asst. City Engineer, Rochester, N. Y. Res. 250 Warwick Ave.

*Edward Smith Poole, B.S.* Insurance Business, 444 Broadway, Albany, N. Y. Res. 48 Manning Blvd.

*\*\*John Wells Noyes, B.S.* Killed on the works of the Mississippi River Power Co., at Keokuk, Iowa, Sept., 1911. See *Necrology*, Annual of 1912.

## 1913

**Harold Tower Baker, B.S.** Since May 11, Asst. Engr. in the engineering dept. of the Great Northern Paper Co., Box 193, Millinocket, Me. Perm. 348 Center St., Dorchester, Mass. T.S.

**Ralph Edmund Baker, B.S.** Draftsman on concrete construction with the Stone & Webster Corp'n., Boston, Mass. Res. 112 Charles River Rd. Perm. 555 W. Park St., Dorchester. T.S.

**Luther Nelson Doe, B.S.** Since July, 1914, in charge of steel reinforcement for 8-story concrete factory at Worcester, Mass. Built by Turner Const. Co., of 11 Broadway, New York City. Perm. Bradford, Vt. T.S.

**George Hobart Farrington, B.S.** Draftsman for Republic Iron and Steel Co., Republic, Fayette Co., Pa. Perm. Kingston, Mass. T.S.

**George Hitchcock, B.S.** Draftsman, American Bridge Co., Elmira Office. Res. 721 College Ave., Elmira, N. Y. Memb. Empire Technical Club. T.S.

**Samuel Hobbs, B.S.** Res. Engr. on construction of State Highways, Holliston and Grafton, Mass. P. O. Box 265, Grafton. Perm. Pelham, N. H. T.S. (1913)

**Edmund Irving Mitchell, B.S.** With the Am. Tel. & Tel. Co., Engr. Dept., 15 Dey St., New York City. Perm. 770 Putnam Ave., Brooklyn, N. Y. T.S. (1913)

**Lew Knowlton Perley, B.S.** Lately with the Aberthaw Const. Co. of Boston. Reported to be with the Penn. R. R. Perm. Laconia, N. H. T.S.

**Mark George Snow, B.S.** Asst to C. P. Richardson (T. Sch., 1909) Engr. on track elevation of the Rock Island R. R. lines in

Chicago. Res. 6546 Stewart Ave. Perm. 2 High St., Middleboro, Mass. T.S.

**Samuel S. Stevens, B.S.** Asst. Eng. N. Y. Munic. Ry. Corpor'n, 6411 21st Ave., Brooklyn, N. Y. Res. 2162 62d St., Brooklyn, N. Y. T.S.

**Ried Herrick Stone, B.S.** Topographical surveys and charge of construction for Geo. C. Stoddard, Cons. Engr. of New York City, summer of 1913. Since September, 1913, Asst. Engr. for United Fruit Co., Santa Marta, Colombia, S. A. Perm. R. F. D. 2, Concord, N. H. T.S.

**Lewis Clement Waterbury, B.S.** Asst. to Superintendent of Ponce & Guayama Railroad, Central Aguirre, Puerto Rico. Perm. Oriskany, N. Y. T.S.

**Ralph Edward Whitney, B.S.** With Robert S. Weston, Cons. Engr., 14 Beacon St., Boston, Mass. Perm. 154 Washington St., Keene, N. H. T.S.

*Claude Moulton Goodrich, B.S.* Draftsman and designer, and later, sales agent for E. & T. Fairbanks Co., manuf'rs of scales, St. Johnsbury, Vt. Res. 10 Harrison Ave.

*Ewart Gladstone Horne.* Asst. Supt. for E. G. M. Cape & Co., Ltd., in charge of completion of Atlantic Sugar Refineries, P. O. Box 30, St. John, N. B. Box 62, Fairville.

*Joseph William Lewis, B.S.* From May to Aug., 1914, draftsman with O. H. Tripp, Rockland, Me. Res. 57 Sylvia St., Lynn, Mass.

*Roy Everett Lewis, B.S.* Lately assistant on construction of reinforced concrete bldgs. for United Fruit Co. in Guatemala and Colombia. Since March 3rd firm of Lewis Bros., Hardware and Plumbing, Lebanon, N. H. Perm. Lebanon, N. H.

#### 1914

**Henry Dehon Abbot, B.S.** Expected to be with the Stone & Webster Eng. Corp'n after Sept. 1st. Address: 23 Berkeley St., Cambridge, Mass. T.S.

**Howard Arthur Barends, B.S.** Material clerk with Aberthaw Const. Co., at the Commonwealth Cold Storage Plant, "New

Fish Pier", So. Boston, since May 11, 1914. Res. 54 Bushnell St., Dorchester, Mass. Perm. 405 Delaware Ave., Albany, N. Y. T.S.

**John Densmore Brewster, B.S.** Since May 1, 1914, Construction Dept., Penn. Ry. Care Asst. Engr. of Construction, Penn. Ry., Broad St., and Washington Ave., Philadelphia, Pa. Res. Y. M. C. A., 1421 Arch St. Perm. Windsor, Vt. T.S.

**Harry Madara Brown, B.S.** During intermediate year on hydro-electric development, St. Croix Paper Co., and draftsman with Post & McCord, New York City. Since May 4, 1914, Junior Engineer, Bridge Dept., Southern Railway, Room 907, Munsey Bldg., Washington, D. C. Perm. 59 Marion St., Mount Kisco, N. Y. T.S.

**Joseph Michael Dolan, B.S.** Asst. to Chief Engineer of Winston & Co., Brown Station, N. Y.: Ashokan reservoir. Perm. 29 E. 130th St., New York City. T.S.

**John Stephen McDonald, B.S.** With the P. McGovern Co., contractors on a four-mile section of the New York State Barge Canal, Mechanicville, N. Y. Perm. 33 Carruth St., Dorchester, Mass. T.S.

**Herbert Carroll Osborne, B.S.** Asst. to Supt. of Bldgs. Dart. Coll. on boulevard road construction; also field and office work for Hanover Water Works Co. Inspector on const'n of a stone and concrete arch bridge for town of Hanover. Perm. Gurnsey Bldg., Keene, N. H. T.S.

**Frank Foss Spencer, B.S.** Inspector for Supt. of Bldgs. and Engr. of Dartmouth College, oversight of new construction, especially the new Tuck boulevard. Hanover, N. H., Box 271. T.S.

**Edwin Milo Stiles, B.S.** Surveyman, U. S. Reclamation Service, Sun River project, Fort Shaw, Mont. Perm. N. Woodstock, N. H. T.S.

**Conrad Church Wilbur, B.S.** Draughtsman and estimator for Hazen & Whipple, waterworks and sanitation, 30 East 42d St., New York City. Perm. 2525 Bryant Ave., So. Minneapolis, Minn.

*Harry Waldo Cole.* U. S. Recl. Service at Poplar, Mont., from May, 1913, to Mar., 1913. After that with Geo. F. Hardy

of New York, in charge of construction of mills for Abitibi Power & Paper Co., Ltd., Iroquois Falls, Canada. Perm. Beecher Falls, Vt.

*Geo. B. Davidson, B.S.* With Geo. F. Hardy, Cons. Hydraulic Engr., 300 Broadway, New York City. Perm. Prince Bay, Staten Id., N. Y. On same work with Cole, as above.

*Wm. Martin Gibson, B.S.* Partly completed second year course. With Hastings Pavement Co. of New York. Perm. East Ryegate, Vt.

*Elbridge Herbert Kingsbury, B.S.* Inspector and transitman, Eng. Dept., Malden, Mass., City Hall. Res. 84 Gainsboro St., Suite 4.

*Henry Sherman Proctor, Jr., B.S.* With Monks & Johnson, Mech. Engrs. and Architects, 7 Water St., Boston, Mass. Perm. 31 Palmer St., Westerly, R. I. (1913)

*George Henry Stiles, B.S.* With the New England Construction Co., 201 Devonshire St., Boston, as draftsman, during the summer. Perm. Goffstown, N. H. (1913)

*Clayton Elmer Tucker, B.A.* With Tyson, Weare & Marshall, general contractors, Boston, Mass. Perm. 41 Harvard St., Chelsea, Mass. (1913)

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## STATISTICAL SUMMARY

Graduates of Dartmouth College	-	-	-	-	-	-	347
Graduates of other Colleges	-	-	-	-	-	-	25
Partial College courses	-	-	-	-	-	-	16
No systematic College course	-	-	-	-	-	-	15
Total attendance, forty-three years, forty-one classes	-	-	-	-	-	-	393
Total who attended both years, full course	-	-	-	-	-	-	277
Total who attended one year	-	-	-	-	-	-	116
Percentage who took graduate course,—six or five years	-	-	-	-	-	-	70%
Deceased	-	-	-	-	-	-	30
Membership in Am. Soc. Civ. Engrs. and Mech. Engrs. (living)	-	-	-	-	-	-	79
Membership in other engineering and kindred societies	-	-	-	-	-	-	117
Membership in Thayer Society of Engineers	-	-	-	-	-	-	188
Number for present session year, not included in averages	-	-	-	-	-	-	39



## STUDENTS OF THE YEAR 1914-1915

### CLASS OF 1915—POST GRADUATE YEAR

(Class resumed classwork September 17. Summer employment May to September,—eighteen to nineteen weeks,—as specified below.)

Kerley, James Joseph, B.S. *72 High St., Ballston Spa, N. Y.*  
Formerly member of class of 1911; see page 60.

Perkins, Herbert Marsh, B.S. *Windsor, Vt.*  
Returns after an absence of one intermediate year. Since May, 1913, rodman and instrumentman, North. Pac. Ry., Dept. Maint. of Way, headquarters at Tacoma, Wash.

Davidson, Herman, B.S. *320 East 67 St., New York City*  
With the U. S. Forest Service, survey of the White Mts., N. H., region.

Elkins, Edgar Harold, B.S. *17 Laurel St., Lakeport, N. H.*  
With the City Engineer of Laconia, N. H.

Emerson, Dean Abbott, B.S. *4 Souhegan St., Milford, N. H.*  
Asst. to R. T. Young (T. S. C. E., 1912), Engr. for H. S. Ferguson (T. S. C. E., 1891) Hydraulic Engr. of New York City on construction of mills for the St. Lawrence Pulp and Lumber Corporation, Chandler, Gaspé Co., P. Q.

Foss, Raymond Haskell, B.S. *10 Hill St., Dover, N. H.*  
Inspector on construction of new mills and other buildings for Cheney Bros., silk manufacturers, So. Manchester, Conn.

Frost, Henry Bradley, B.S. *58 Old Mystic St., Arlington, Mass.*  
Travelling in Europe during the summer.

Hands, Wm. Charles, Jr., B. S. *205 West 130th St., New York City*  
Transitman for C. M. Mapes, Assoc. Memb. A. S. C. E. of New York City, Bronx Borough.

Maddalena, Arthur Daniel, B.S. *203 Clarendon St., Boston, Mass.*  
Asst. to F. A. Snow, Memb. A. S. C. E., contractor, public works, Boston.

- Margeson, Jas. Parker, Jr., B.S. *204 Lincoln St., Winthrop, Mass.*  
Outside foreman for the Aberthaw Construction Co., on new mills for Cheney Bros., So. Manchester, Conn.
- McClary, Geo. Brewer, B.A. *126 Horne Ave., Oak Park, Ill.*  
Travelling in Europe.
- Munkelt, Albert Ernst, B.S. *668 Argyle Road, Brooklyn, N. Y.*  
Rodman and inspector for R. S. Weston, Civ. Engr. of Boston, on construction of a sewer, Nantucket Id.
- Olson, Karl Oscar, B.S. *8 Victor Ave., Worcester, Mass.*  
With Am. Optical Co., Southbridge, Mass.
- Pierce, Clarence Warren. *Fairlee, Vt.*  
Surveyman for the Monongahela Eng. Co.; plane table surveys in vicinity of Morgantown, W. Va.
- Potter, Howard Huntington, *29 Crowinshield Rd., Brookline, Mass.*  
White Mts. forest survey, as above, under L. C. Marshall (T. S. C. E., 1912), chief of party.
- Remsen, John J., Jr. *1 Remsen Place, Brooklyn, N. Y.*  
Rodman and inspector on mills of St. Croix Paper Co., Grand Falls, Me., for Geo. F. Hardy, Hydraulic and Mill Engr. of New York City.
- Richmond, Allen Pierce, B.S. *219 Washington St., Dover, N. H.*  
With S. J. Lord (T. S. C. E., 1896), city engineer of Manchester, N. H.
- Saville, Thorndike, B.A. (Harvard), B.S. (Dart. Coll.).  
*53 North Beacon St., Hartford, Conn.*  
Field assistant, THAYER SCHOOL OF CIVIL ENGINEERING, July 15-Sept. 15.
- Stiles, Harold Andrew, B.S. *51 Irvington Pl., Denver, Colo.*  
No report.
- Stratton, Stanley Carter, B.S. *Bradford, N. H.*  
On the same work with Emerson, as above.
- Van Riper, Harold Griffith, B.S. *Blue Point, Long Id., N. Y.*  
With the Standard Oil Co., at Albany, N. Y. Address: 4 Pine St. Two months with N. Y. C. & H. R. R. R. Co.
- Weed, Frederick Harrison, B.S. *32 Summit Ave., Lynn, Mass.*  
Asst. to Wm. E. Badger, Asst. Engr., Locks and Canals Co., Lowell, Mass.

## INTERMEDIATE YEAR—NON-RESIDENT GROUP

Davidson, Frederick Armstrong, B.S.

*19 Anderson St., New Rochelle, N. Y.*

In business: building contractor's supplies and machinery.

Edson, Carroll Andrew, B.S. *680 St. Nicholas Ave., New York City*

Decided to go into Social Welfare work. Courses in Sociology, Columbia University during the coming year.

Lowell, Henry Osgood, B.S. *23 Fairmount St., Everett, Mass.*

April to July with Barrett Mfg. Co. Since July 6, City of Malden Engr. Dept.

Picken, Marshall Woolley, B.S. *457 West 141st St., New York City*

"Rodman", rapid transit subway construction, Borough of Queens.

Pritchard, Richard Edward, B.S. *669 3d Ave., Troy, N. Y.*

With The Stanley Works, New Britain, Conn., Cost Dept. Res. 24 Cedar St. Perm. as above.

Taylor, Alfred Richard, B.S. *2018 O St., Washington, D. C.*

In the office of the Principal Asst. Engr., Southern Ry., Knoxville, Tenn.

## FIRST-YEAR CLASS (T. S. C. E., 1916)

(The year of this class began July 16. Unless otherwise indicated, members of this class are Seniors in Dartmouth College and candidates for the College degree of B.S. in 1915.)

Anderson, Timothy Edwin *Middleboro, Mass. 126 Wood St.*

Clarke, Robert Gilkes *New York City 718 W. 178th St.*

English, Alpheus Thelesphore *Rochester, N. H. 49 Pine St.*

Hovey, Otis Wadsworth *Plainfield, N. J. 304 W. 7th St.*

Kelly, Russell Morgan *Woodstock, Vt.*

Kimball, John Clifton *Brookline, Mass. 147 Salisbury Rd.*

Lang, William Alfred *Middleboro, Mass. 23 Arch St.*

Lanterman, Herbert Dillistin *Paterson, N. J. 30 N. Main St.*

McCarthy, Justin Howard *Portsmouth, N. H. 404 Union St.*

Nichols, Arthur Clough *Topeka, Kansas*

Pendleton, John David *Melrose Hills, Mass., 93 Melrose St.*

Rice, Russell Jackson	<i>Allston, Mass.</i>	<i>18 Quint St.</i>
Richardson, George Howard	<i>Littleton, N. H.</i>	<i>20 South St.</i>
Rothery, Paul Robinson	<i>Springfield, Mass.</i>	
		<i>119 Maplewood Ter.</i>
Spaulding, Roger Wm.	<i>Lancaster, N. H.</i>	
Woodcock, Charles Franklin	<i>Lawrence, Mass.</i>	<i>318 Andover St.</i>
Woolworth, Wendell Howard	<i>Niagara Falls, N. Y.</i>	

## OCCURRENCES—SESSION YEAR 1913-1914

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### ANNUAL EXAMINATION AND GRADUATION APRIL 24 AND 25, 1914

#### THESES AND CANDIDATES

##### FOR THE DEGREE OF CIVIL ENGINEER

1. Study of the Coal Handling Problem of the Heating and Lighting Plant of Dartmouth College, serving upwards of forty Buildings.  
HENRY DEHON ABBOT, B.S. *New York City*
2. System of Sewage Disposal for the South Sewer of Dartmouth College and the Village Precinct of Hanover, N. H.  
JOHN DENSMORE BREWSTER, B.S. *Windsor, Vt.*  
HARRY MADARA BROWN, B.S. *Mt. Kisco, N. Y.*
3. Project for a Spur line from the B. & M. Railroad to a Station in Hanover Village.  
HOWARD ARTHUR BARENDS, B.S. *Albany, N. Y.*  
JOSEPH MICHAEL DOLAN, B.S. *New York City*  
JOHN STEPHEN McDONALD, B.S. *Dorchester C't'r., Mass*  
CONRAD CHURCH WILBUR, B.S. *Minneapolis, Minn.*
4. Design of a Fireproof Storehouse for Dartmouth College.  
HERBERT CARROLL OSBORNE, B.S. *Keene, N. H.*  
FRANK FOSS SPENCER, B.S. *Berwick, Me.*  
EDWIN MILO STILES, B.S. *No. Woodstock, N. H.*

##### JOINT GRADUATING EXERCISES AND DINNER

After the examination of the candidates through the reading and discussion of the theses, the Board of Overseers made the usual recommendations for the award of diplomas. At 6 P. M., the Board of Overseers, the Faculties of the Medical College, Thayer School of Civil Engineering, and Tuck School of Administration and Finance, and candidates for the three professional degrees met in the Faculty room of the new Administration Building where the diplomas were presented with simple formalities by

the President of Dartmouth College to the three graduating classes. Immediately after this, adjournment was made to College Hall where, by invitation of the Trustees of the College, all of the participants in the aforesaid exercises partook of the graduation dinner. This was attended also by seven members of the Board of Trustees, President Nichols presiding. Appropriate remarks were made by one representative of each institution, one of the Trustees, and one speaker from each of the classes.

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### SPECIAL MENTION

**Visits of Thayer School Men** have been made during the past year—September, 1913, to October, 1914—as follows:

Henry A. Symonds, 1894.  
 J. H. Letteney, 1896 (Lecture).  
 O. E. Hovey, 1896 (Lecture).  
 C. A. French, C.S.D., 1893 (Lecture).  
 Mr. and Mrs. C. L. Carpenter, 1889.  
 William H. Ham, 1898.  
 John L. Mann, 1898.  
 Prof. and Mrs. Albert Smith, 1903.  
 H. E. Plumer, 1903, and friends.  
 George Albert Reed, 1904.  
 H. R. Messer, 1906.  
 Samuel C. Bartlett, 1908.  
 Ruben Hayes, 1908.  
 Charles P. Richardson, 1909.  
 Ralph W. Hazen, 1909.  
 Mr. and Mrs. E. W. Higbee, 1911.  
 Luther N. Doe, 1913.  
 L. K. Perley, 1913.  
 L. C. Waterbury, 1913.  
 Roy E. Lewis, 1913.  
 Mr. and Mrs. S. G. Walker, 1892, and friends.  
 Mr. and Mrs. C. E. Ellsworth, 1912, and friends.  
 F. S. Perham, 1904.  
 Mr. and Mrs. H. A. Ward, 1910.

The following were present and visited the School at the time of the class reunions at the College Commencement in June:

Prof. C. H. Pettee, 1876.  
John H. Springfield, 1886.  
George P. Bard, C.S.D., 1886.  
H. S. Ferguson, 1889.  
A. B. Clark, 1890.  
William M. Ames, 1895.  
F. H. Trow, 1895.  
A. A. Adams, 1895.  
H. R. Thurston, 1895.  
C. P. Rossiter, 1895.  
A. W. Stone, 1896.  
A. H. Greenwood, 1900.  
L. S. Oakes, 1900.  
Herbert L. Watson, 1900.  
Thomas G. Whittier, 1900.  
P. H. Winchester, 1900.  
E. B. Wardle, 1900.  
J. L. Sanborn, 1900 (Non-graduate).  
J. W. Ash, 1901.  
H. H. Sears, 1901.  
John F. Doonan, 1905.  
J. H. Fellows, 1905.  
H. G. Roby, 1906.  
B. H. Dudley, 1910.  
Frank S. Austin, 1910.  
Maurice Readey, 1911.

At the annual meeting of the THAYER SOCIETY OF ENGINEERS in New York the following Thayer School men were present:

Snow, 1875	G. E. Porter, 1903
Hopper, 1885	Doonan, 1905
Wheaton, 1886	Conley, 1906
Nichols, 1888	Goodrich, 1906
C. R. Chase, 1889	H. G. Porter, 1907
O. E. Hovey, 1889	Hayes, 1908
F. B. Sanborn, 1889	Peck, 1908
A. B. Clark, 1890	Lincoln, 1909

W. N. Hazen, 1890	F. H. Munkelt, 1909
George R. Wood, 1890	Thompson, 1909
Ferguson, 1891	F. S. Weston, 1909
H. E. Abbott, 1893	Beebe, 1910
Morrison, 1893	Gould, 1910
Ford, 1895	Herrick, 1910
Trow, 1895	Eastman, 1911
McIndoe, 1896	Higbee, 1911
G. L. Mann, 1898	Readey, 1911
Whittier, 1900	Rogers, 1911
J. W. Ash, 1901	Kinney, 1911
Cudworth, 1902	Doe, 1913
Marsh, 1902	Mitchell, 1913
W. F. Rugg, 1902	Stevens, 1913
Farr, 1903	

George C. Stoddard, Dartmouth College, 1881, Secretary.

The guests of the evening, as noted beyond, were Mr. Rudolph Miller, Superintendent of Buildings of the City of New York, Chas. F. Mathewson (Dart. Coll., 1882) Trustee of the College, Chas. F. Conn (Dart. Coll., 1887), etc., and the Director of the Thayer School.

On the days following, many of these (including the Director) attended the Annual Meeting of the Am. Society of Civil Engineers, taking the excursion by special train beyond Scranton, Pa., to visit the great concrete viaducts being built by the D. L. & W. Ry. Mr. F. L. Wheaton (T. S., 1886), engineer of construction of these works, was present to serve as guide and explainer. These are the highest and longest arched structures of this sort yet attempted.

By the courtesy and hospitality of H. E. Abbott (T. S., 1893) construction engineer, the Director visited the works of the East Jersey Water Co. at Paterson and Little Falls, including a new power house, sedimentation basin, mechanical filters, and chlorination plant.

In June, while the Director was in the vicinity of New York, a meeting of the Executive Committee of the THAYER SOCIETY was called by Mr. Tozzer, to consider the questions referred to it at the Annual Meeting (see report of the Secretary). On very



short notice twenty-one members of the Society assembled at the Murray Hill Café for dinner, and adjourned thence to the rooms of the Dartmouth Club where the evening was devoted to the presentation of facts and conditions, and to deliberation.

**Summer Employment.** Although the outlook in April, 1914, was distinctly unfavorable, the thirty-six men who left at the end of the session, April 25th, all found remunerative occupation in engineering lines, either before that date or within three weeks afterwards. This excepts three or four who had plans for travel or other pursuits not in engineering. Such result was possible not only through the endeavors and merits and influence of the men themselves, but especially through the interest and coöperation of the alumni of the Thayer School, and the College, whose effective good-will was much appreciated. The results are shown on the preceding pages (64 to 68). For the graduates who had earned the C.E. Degree, the benefits from the engagements of the previous summer were evident.

By invitation of President John P. Brooks (Chandler Scientific Dept. of the College, 1885), Professor Fletcher gave the Commencement address at the Clarkson College of Technology, Potsdam, New York, in June; subject: "When Does a Man Become an Engineer?"

The small, plain, tight, septic tanks or regulated cesspools at Sugar Hill, New Hampshire, the first plans for which were furnished by Professor Fletcher four years ago, have proved so successful that more than fifty have been built, and many more are to be built in that region. At small expense they purify the merely domestic sewage of individual private houses and summer hotels, giving a nearly clear and odorless and wholly liquid effluent, which runs directly upon grassland with no subsequent putrefaction. These have been built by Mr. D. M. Tefft, the local health officer, under direction of the State Board of Health, Concord. Mr. Tefft simplified the construction and demonstrated that tightness is necessary for best efficiency. Full particulars in the Bulletin of the New Hampshire State Board for April, 1914, to be had on application.

Acknowledgements are due to many graduates for interesting letters descriptive of work in hand, for instructive photographs, blue prints and printed reports and other useful material which are properly credited to the donors.

Professor Howe (1885), Rose Polytechnic Institute, and Professor Albert Smith (1903), of Purdue University, have again entered the field of authorship, the former with two very useful brief books on "Influence Lines" and on "Foundations", and the latter with a valuable essay on "Wind Loads on Buildings", supplementing former papers on the same general subject.

Wallace F. Purrington, Inspector of the New Hampshire State Board of Health, is expected to address the classes in November on sanitary supervision in the State, especially in relation to "inspected milk" and other food supplies.

Mr. F. M. Schilling, representing the Lehigh Portland Cement Co., is expected to give a lecture, illustrated by moving pictures, describing the processes in the manufacture of Portland cement; in November.

F. S. Perham, 1904, called in October and stated that he is in business for himself as Civil Engineer at 307 Duvall Bldg., Jacksonville, Florida. This corrects the statement on page 43.

H. C. Osborne, 1914, is assistant in the office of the Locks and Canals Co., Lowell, Mass. This amends statement on p. 65.

Edmund I. Mitchell, 1913, in a belated report, states that he is in the Commercial Engineering Department of the Am. Tel. & Tel. Co., which is separate from the Engineering Dept.

H. W. Clark, 1900, in a belated report, gives his address: care of Pacific Lock-joint Pipe Co., Cooper's Cove (near Victoria), B. C. Home address as on page 35. "In charge of installation of seventeen miles of 42-inch concrete water main for the Victoria Supply."—Since Dec., 1913.

Hugh B. Tabor, in a belated return states that he is now resident engineer, U. S. Steel Products Co., and member of the Institution of Engineers of the river Plate. Otherwise his address is as given on page 33.

James S. Adams in a belated return gives present address as 111 West Washington St., Chicago. He is a Member of the Western Society of Engineers and of the Chicago Engineers Club.

The letters T.S. (Member Thayer Society of Engineers) should be affixed to the following names:—Paul, page 22; Moulton, p. 23; Sanborn, p. 28; Bourne, p. 48; Pease, p. 62.

# OCCUPATIONS OF THAYER SCHOOL MEN, BOTH IN THE PRESENT AND PAST, SHOWING LARGE AND NOTEWORTHY PARTICIPATION IN THE WORLD'S WORK

This exhibit is approximate; some having been engaged in two or more pursuits are counted more than once; but not all the individual service during the entire period of 40 years, nor all of the works on which they have been employed, are included.

## CIVIL ENGINEERS AND SURVEYORS

### BUILDING CONSTRUCTION, INCLUDING REINFORCED CONCRETE, POWER PLANTS, MILL CONSTRUCTION, ETC.

General practice: consulting and contracting, mill engineering, and power development (1 in Hawaii) - - -	30
Chief and asst. engrs. for contractors; managers - - -	15
Engrs. in charge of construction: including Harvard Stadium, Phelps Pub. Co.'s bldg., Springfield, Mass.; seven great warehouses for Bush Terminal Co., Brooklyn, N. Y.; Viaducts of Fla. E. Coast Ry., etc. - - -	39
Assts., instrumentmen, draftsmen, inspectors, etc. - - -	54
Surveyors and engineers, private practice - - -	16
U. S. Geol. Survey: topography, water resources, etc. - -	10

### BRIDGES AND OTHER FRAMED STRUCTURES OF IRON AND STEEL

Those concerned in the design, manufacture, or erection, as:	
Chief Engineers, Asst. Chief Engineers, Managers or Presidents of Companies; members of firms - -	10
Sales or Contracting Engineers (one in Argentina, S. A.) -	4
Consulting and Contracting Engineers; Chief Draftsmen -	12
Designers, Estimators, and Draftsmen - - -	30
Resident Engineers in charge of erection of the following (among others) - - - - -	6
Kentucky and Indiana Bridge over the Ohio River;	
Fort Madison Bridge over the Mississippi River; Wa-	

bash Bridge, Terra Haute, Ind.; Thebes Bridge across Mississippi River; Poughkeepsie Bridge over Hudson River (reconstruction); Stock Exchange and other Steel Skeleton buildings, New York; Construction of South Side and West Side Elevated Railways, Chicago; Design and erection of structures for Dreamland Park, Coney Id.; Steel Work of Hudson Terminal Bldg., Bankers' Trust, Municipal Bldg., etc., New York City.

Responsibility for much of the work of design of the following structures:

The Sabula swing bridge; bridges erected on the Boston & Maine Ry. system during 18 years; one as Asst. to the late Geo. S. Morison, participated in the design of several large bridges in the Mississippi Valley, the Bellefontaine, Cairo, Memphis bridge, etc.; one, as Prin. Asst. Engr., designed the steelwork of the great power houses for the Manhattan and Interborough Rapid Transit systems of New York City.

#### RAILROADS AND TRANSPORTATION

Chief Engineer, Gen. Manager of Ry. systems	-	-	-	3
Div. Engrs., maintenance of way engrs., etc.	-	-	-	4
Res. Eng. and Asst. Engrs. Bridges and Bldgs. dept.	-	-	-	8
Locating Engrs. or chiefs of party on original survey	-	-	-	8
Engrs. in charge of construction, including contracting engr.				16

On the following works, among others:

Two tunnels on Penn. Ry.; Bergen tunnel of the D. L. & W. Ry., Hoboken; new terminal station of D. L. & W. Ry., Hoboken; South Fork Extension of Penn. Ry.; round house and yards at Wall, Pa.; two-mile section of the Subway, New York City; Guantanamo & Western Ry., Cuba; Hopatcong cut-off, D. L. & W. Ry.; Chi., Mil., & St. Paul Ry., through Bitter Root Mts.; grade revision Cumberland Valley R. R. (Penn. System), design of reinforced concrete arches up to 100 ft. span; extensions of Northern Pacific Ry.; Madeira-Mamore Railway, Brazil; Philippine Rys., Negros, Cebu, Panay.

## OCCUPATIONS

79

Asst. Engrs., Transitmen, etc., on surveys and construction	
Florida East Coast Railway, etc. - - - -	33
Rodmen and Draftsmen, Asst. Supervisors of track, etc. -	15

## STATE AND MUNICIPAL ENGINEERS

State Engineer (1), Director Pub. Works San Domingo (1)	2
City Engineers and Surveyors - - - -	7
Sanitary Engineer, State of Va. - - - -	1
In charge of construction of highways and canals - - -	9
Draftsmen and general assistants - - - -	30
Street pavements, contracting and constructing:	
Managers or chief engr. and supts. - - - -	4
Supts. of construction and foremen (past and present) -	27

## WATER WORKS. FILTRATION PLANTS

Superintendents, Washington, D. C., filtration plant, etc. -	3
New York Board of Water Supply Catskill Aqueduct:	
Chief Engineer for Contractor on Ashokan dam - -	1
Res. Eng. and Assts. in field or office - - - -	6
Supt. of Construction, Los Angeles and Portland Aqueducts	2
Asst. Engrs. Inspectors and Draftsmen - - - -	14

## CANALS. RIVER AND HARBOR WORK. GEODESY

Constructing Engrs. for contractors,—dry-docks, etc. - -	6
On breakwaters, Manzanillo, Mex., (2), Cuba (2), etc.	
U. S. Asst. Engrs., 11; Juniors, 6 (past and present) - -	17
Contractor or engr., harbor dredging, etc. - - - -	4
U. S. Coast and Geod. Survey:	
“Assistant” (Philippines, Alaska, transcontinental tri- angulation and precise levelling) Aids and deck officers,	
U. S. Lighthouse Service, Inspector (1) - - - -	10
Surveys for Nicaragua Canal - - - -	4
Panama Canal: Res. Engr., Asst. Engr., concrete work; instrumentmen, etc. - - - -	7
Civ. Engrs., U. S. Navy - - - -	2

## IRRIGATION WORKS DEVELOPMENT

## U. S. Reclamation Service:

Supervising Engineer (1), Asst. Engrs. (8) - - -	9
Asst. Engr., in charge of all cement testing - - -	1
Junior Engineers or "Survey-men" and draftsmen - - -	12
These have done laborious service on the following projects: Belle Fourche, Shoshone, Salt River (Roosevelt dam), Huntley, Laguna dam, Klamath, Pathfinder dam, Sun River, Blackfeet Ind. project. etc.	
Constructing Engineers, 3 in San Domingo and Porto Rico	2
Consulting and Contracting Engrs. - - - - -	5

## ENGINEERING EDUCATION, RESEARCH, OTHER BUSINESS

Professors of Civil Engineering and Instructors, of whom twelve are heads of departments; and assistants - -	28
Conducting researches in laboratories - - - - -	5
Electrical and Mechanical Engineering - - - - -	7
Mining and Metallurgy (two in Mexico lately, one now) -	5
Manufacturing, including iron works, lumber, paper mills and quarrying. Proprietors, members of firms, or agents	17
Merchants (5), Farmers and Ranchmen (5) - - - -	10
Managers or Superintendents of power or light Cos., or both	3
Fire prevention engineering and insurance - - - -	11

## OTHER PROFESSIONS. LITERARY WORK

Astronomers (formerly one at Cordoba Observatory, Argentina, and one at Tokio, Japan, and U. S. Naval Observatory) - - - - -	2
Meteorologist and Forecaster, U. S. Weather Bureau - -	1
Professor of mathematics (Dean of College, 1) - - -	3
AUTHORS OF PAPERS OR REPORTS contributed to technical societies, journals, etc., or WRITERS OF TREATISES ON ENGINEERING SUBJECTS - - - - -	28
Ministry, pastors of churches or mgr. Y. M. C. A.; teaching (2)	6
Inventors; Railroad specialties, 1; hydraulics, 1 - - -	2
Physician, 1; Lawyer, 1 - - - - -	2

GEOGRAPHICAL DISTRIBUTION OF THAYER SCHOOL  
MEN, SEPTEMBER, 1911, TO SEPTEMBER, 1914

(Covering two years, so that many names appear twice.)

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**Alaska:** A. J. Ela, C. E. Ellsworth.

**Alberta, Canada:** A. H. Ayers.

**Argentina:** George F. Baine, H. B. Tabor.

**Brazil:** F. S. Weston, G. H. Nolan, J. W. Mair.

**British Columbia:** H. W. Clark, S. A. McCoy.

**California:** J. A. Worthen, E. P. Dewey, H. S. Eaton, H. H. Sears, C. W. Davis, B. W. Matteson, H. L. Muchemore, E. A. Lincoln, A. T. Fowler, John Walker, C. B. Worthen.

**Carolina (North and South):** H. D. King (Charleston.) J. T. Chase, W. M. Silleck.

**Colombia, S. A.:** F. A. Hatch (Santa Marta), Harold Parker, C. E. Langley, R. H. Stone, R. E. Lewis.

**Colorado:** D. R. Reed, J. Y. Jewett, M. E. Witham, H. R. Harrison, W. W. Curtis.

**Connecticut:** D. E. Bradley, C. H. Cheney, C. F. Chase, E. M. Stone, A. H. Greenwood, H. L. Watson, R. B. Doane, A. H. Schilling, J. F. Doonan, J. H. Fellows, F. E. Hanson.

**Cuba:** J. A. Macnicol, G. H. Nolan.

**Dakota (North and South):** F. G. Cook.

**Florida:** E. R. Davis, F. S. Perham (1910), F. S. Weston.

**Georgia:** L. C. Marshall, J. W. Ash.

**Guatemala:** Harold Parker, R. E. Lewis.

**Hawaii:** H. W. Robinson.

**Idaho:** J. C. Beebe, F. W. Welch.

**Illinois:** L. S. Oakes, C. A. Rich, H. O. Rugg.

**In or Within Fifty Miles of Chicago:** W. W. Curtis, W. E. Angier, A. W. Hardy, F. H. Stowell, J. S. Adams, H. L. Boynton, W. R. Kimball, C. P. Richardson, W. C. Winkley, M. G. Snow, G. A. Butler.

**Indiana:** M. A. Howe, Albert Smith, A. W. Stone, H. M. Morse.

**Iowa:** J. D. Lonsdale, J. H. Dunlap, R. W. Noyes, W. D. Gordon.

**Kansas:** J. F. Springfield, H. K. Hibbard.

**Kentucky:** J. A. Gilman, W. H. Fox, J. H. Stone.

**Louisiana:** J. A. Anderson, Donald Derickson (New Orleans).

**Maine:** W. M. Ames, C. K. Hosford, F. B. Greenleaf, N. H. Knight, H. M. Brown, H. T. Baker, C. F. Robinson, J. W. Ingalls, J. W. Lewis, H. M. Paul.

**Maryland:** C. M. Soule.

**Massachusetts:** C. E. Andrews, R. H. Brown, A. W. French, A. A. Adams, O. P. Tabor, C. E. Paddock, H. K. C. de Anguera, A. W. Hare, H. N. Cross, G. A. Lewis, W. T. Shaw, R. W. Brown, F. F. Parker, F. S. Austin, J. D. Brewster, N. L. Doe, Samuel Hobbs, W. H. Balch, H. M. Gray, E. A. Lincoln, F. S. Weston, J. M. Porter, J. W. Ingalls.

**In or Within Fifty Miles of Boston:** J. P. Snow, B. Phillips, F. B. Sanborn, H. A. Symonds, H. R. Thurston, J. H. Letteney, H. N. Chase, G. W. Parker, W. B. Plumer, M. F. Brown, W. H. Ham, A. L. Galusha, J. G. Andrews, G. A. Sampson, H. W. Fitts, C. L. Bourne, C. R. Main, A. B. Barnes, F. K. English, Benj. Ayer, H. B. Dore, R. E. Parker, E. H. Pierce, R. A. Sherwin, A. W. Wood, S. C. Beane, E. M. Stevens, R. E. Whitney, J. D. Brewster, G. H. Stiles, H. S. Proctor, C. E. Tucker, H. A. Barends, E. H. Kingsbury, P. N. Storer, R. E. Baker, H. D. Abbott, (37).

**Mexico:** Vicente Molina (Yucatan), G. W. Newman.

**Michigan:** H. G. Roby, E. S. Poole, R. F. Hill.

**Minnesota:** G. H. Hutchinson, S. A. McCoy, L. S. Oakes, P. W. Stickney, C. C. Wilbur, D. T. Reed.

**Mississippi:** F. C. Stanton.

**Missouri:** E. K. Blanchard, C. D. Lamb, H. M. Hess, J. B. McIntyre, W. B. Smith.

**Montana:** H. N. Savage, W. A. Perkins, A. H. Ayres, M. C. Knapp, C. R. Main, R. W. Hazen, J. W. Childs, H. W. Cole, E. M. Stiles, J. C. Beebe.

**Nebraska:** Charles Sargent, A. H. Norris, H. D. Comstock, W. B. Smith.

**New Brunswick:** J. W. Crowell, E. G. Horne.

**New Hampshire:** J. T. Woodbury, J. V. Hazen, C. H. Pettee, R. T. Gile, J. D. Hutchinson, Rush Chellis, C. F. Robinson, John Walker, C. T. Rossiter, W. H. Langmaid, S. J. Lord, H. A. Cochran, C. A. Holden, E. H. Hunter, E. M. Stevens, H. M. Haskell, F. F. Parker, N. F. Davis, S. L. Ruggles,



R. B. Clement, P. S. Dow, E. W. Keith, R. E. Baker, W. M. Gooding, L. K. Perley, W. M. Ames, H. A. Wells, R. E. Lewis, H. C. Osborne, F. F. Spencer, L. C. Marshall, R. H. Stone, J. D. Brewster, R. T. Young.

**New Jersey:** S. B. Cady, S. J. Johnson, F. L. Wheaton, W. N. Hazen, H. E. Abbott, C. F. Goodrich, R. C. Wood, Roy Mullins, J. A. Cassidy, W. H. Eastman, Maurice Readey, H. L. English, Fletcher Rogers.

**New York:** J. W. Record, F. H. Trow, H. A. Warden, P. H. Winchester, C. R. Chase, H. C. Hill, H. E. Plumer, H. C. Adams, H. M. Morse, H. L. Ropes, O. L. Burdett, N. S. Buckbee, F. B. Greenleaf, H. A. Morey, W. C. Rich, F. E. Schilling, B. H. Dudley, W. L. Smith, H. A. Ward, L. H. Sisson, C. E. Locke, K. J. Knapp, E. S. Poole, George Hitchcock, R. H. Stone, J. S. McDonald, W. H. Fox, W. M. Silleck, E. S. Poole.

**In or Within Fifty Miles of New York City:** S. B. Cady, J. J. Hopper, S. J. Johnson, C. H. Nichols, O. E. Hovey, T. Flynn, A. B. Clark, G. P. Wood, H. S. Ferguson, E. J. Morrison, W. C. Phelps, B. F. Welton, G. J. McIndoe, A. W. Stone, J. L. Averill, E. B. Wardle, J. M. Gibson, T. T. Whittier, E. H. Sprague, F. E. Cudworth, F. B. Marsh, W. F. Rugg, E. F. Whitaker, L. B. Farr, J. E. Porter, H. S. Richmond, A. C. Tozzer, T. R. Remsen, C. A. Studwell, F. W. Osgood, W. A. Conley, C. P. Smith, G. R. Colson, W. E. Hawley, C. M. Everett, S. F. Garvin, S. C. Bartlett, H. M. Gray, R. R. Marsden, F. H. Munkelt, P. L. Thompson, D. R. Bradley, O. W. Cushman, R. R. Gould, A. L. Herrick, E. W. Higbee, W. H. Krafft, Fletcher Rogers, A. W. Wood, J. R. Kinney, G. M. Perry, P. N. Storer, J. J. Boynton, H. W. Robinson, A. A. Hormel, H. W. Pease, R. T. Young, F. L. Wheaton, W. N. Hazen, H. E. Abbott, C. F. Goodrich, R. C. Wood, J. A. Cassidy, W. H. Eastman, Maurice Readey, H. L. English, E. I. Mitchell, S. S. Stevens, H. A. Barends, J. M. Dolan, E. M. Stiles, W. M. Gibson, J. L. Mann, H. C. Adams, F. N. Tinker, Geo. B. Davidson, C. C. Wilbur, H. A. Campbell, G. H. Knight, R. W. Hazen, R. H. Peck, H. G. Porter, W. M. Silleck, (83).

**Nova Scotia:** W. C. Risley.

**Ohio:** J. H. Fellows, Roy Mullins, H. M. Morse, C. A. Luck, A. B. Rutherford, A. L. Buxton, E. M. Steward, F. W. Osgood, F. H. Munkelt, Fletcher Rogers.

**Ontario, Canada:** George B. Davidson, J. J. Kerley, J. W. Mair, H. W. Cole.

**Oregon:** G. E. Woodward, R. S. Danforth, C. W. Ross, F. G. Leary.

**Panama, C. Z.:** H. D. Hinman, C. E. Langley, Harold Parker, F. C. Stanton.

**Costa Rica Boundary:** F. S. Hanson.

**Pennsylvania:** G. F. Sparhawk, P. L. Parker, H. B. Shattuck, M. G. Littlefield, W. L. Hutchinson, E. R. Cate, F. W. Newhall, Crosby Tappan, L. B. Smith, R. H. Peck, R. G. Knight, A. L. Buxton, G. H. Farrington, A. B. Rutherford.

**In or Within Fifty Miles of Philadelphia:** W. H. Ford, M. H. Hoyt, S. C. Beane, W. F. Kimball, F. S. Whitcomb, A. B. Clark, F. D. Sears, Carroll Paul, J. D. Brewster, (9).

**Philippine Islands:** Carroll Paul.

**Province of Quebec:** M. J. Leahy, S. F. Garvin, R. T. Young, E. B. Wardle.

**Puerto Rico:** C. L. Carpenter, H. T. Pierce, L. C. Waterbury, H. W. Pease.

**Rhode Island:** S. G. Walker, C. I. Peckham, E. T. Richards, F. E. Hanson.

**Saskatchewan:** Sherman Smith, J. C. Beebe.

**South America:** H. B. Tabor, G. F. Baine, (Buenos Aires), F. S. Weston, G. H. Nolan, (Brazil), F. A. Hatch, (Santa Marta, Colombia), Harold Parker, R. E. Lewis.

**Tennessee:** J. W. Ash (Chattanooga).

**Texas:** S. M. Wilcox, R. L. Libby.

**Unknown:** R. Hunter, A. L. True, J. L. Sanborn, A. J. Wheeldon, J. E. Hansbury, G. E. Chamberlain, J. M. Smyth.

**Vermont:** A. E. Winslow, G. A. Reed, H. C. Whitmore, J. O. Goodrich, R. T. Young, H. A. Campbell, C. M. Goodrich, F. B. Greenleaf, C. K. Hosford.

**Virginia and West Virginia:** H. R. Messer, A. A. Hormel, R. H. Stone, R. R. Marsden, J. J. Kerley.

**Washington, D. C.:** H. M. Paul, E. D. Hardy, A. B. Ilsley, C. H. Hoyt, A. T. Fowler, O. A. Mechlin, Reuben Hayes, C. E. Ellsworth, L. C. Marshall, H. L. English, H. M. Brown, F. S. Whitcomb.

**Washington State:** E. J. Johnson, S. J. Smith, L. M. Perkins, H. L. Muchemore, F. W. Welch.

**West Indies:** *Santa Domingo City*, W. H. Balch, J. L. Mann. *Puerto Rico* see above. *Haiti*, G. R. Colson, (St. Marc.)

**Wisconsin:** M. O. Withey, H. G. Roby, R. B. Clement.

**Wyoming:** J. J. Marshall, John Walker, H. D. Comstock, V. W. Russell.

**Yucatan:** Vicente Molina (Merida).



THAYER SOCIETY OF ENGINEERS

OF

DARTMOUTH COLLEGE

---

ORGANIZATION—MEMBERS—CONSTITUTION

AND

REPORT OF THE SECRETARY

---

GENERAL LIST OF ALUMNI

OF

DARTMOUTH COLLEGE, AND CHANDLER SCIENTIFIC  
DEPARTMENT OF THE COLLEGE, WHO ARE,  
FOR THE MOST PART, ENGAGED IN  
ENGINEERING PURSUITS

# THAYER SOCIETY OF ENGINEERS OF DARTMOUTH COLLEGE

---

*President*, ARTHUR C. TOZZER '03  
*Treasurer*, FRANK E. CADWORTH '02  
*Secretary*, GEO. C. STODDARD '81  
215 W. 125th Street, New York City

*Executive Committee:*

GEO. C. STODDARD '81  
HARDY S. FERGUSON '91  
GEO. F. HARDY '88  
A. C. TOZZER '03  
F. E. CUDWORTH '02

*Advisory Board:*

ROBERT FLETCHER, *ex-officio*

A. B. ILLSLEY '95	}	Term expires January, 1915
J. P. BROOKS '85		
WM. HOOD '67		
D. H. ANDREWS '69	}	Term expires January, 1916
G. P. BARD '89		
D. E. BRADLEY '85		

## STATEMENT OF THE SECRETARY

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The Tenth Annual Meeting of the Thayer Society of Engineers of Dartmouth College was held at the rooms of the Dartmouth Club, 12 West 44th St., New York City, on the evening of January 20th, 1914

A general reception was held between the hours of 6.30 and 7.30 p. m., followed by an informal dinner, which was attended by some fifty members and guests of the Society.

The College was represented by Prof. Robert Fletcher, director of the Thayer School; the Board of Overseers of the Thayer School by Mr. J. P. Snow, of the class of 1875.

The Trustees were represented by Charles F. Mathewson, Esq., D. C. '82.

At the conclusion of the dinner, President Hardy S. Ferguson, who also acted as toastmaster, called the meeting to order, and after a few brief and well-chosen remarks, called for the report of the Secretary.

A summary of the Secretary's report is as follows:

During the year just ended your Committee has held five meetings. While matters have been rather quiet, the committee has been laying plans for future work, mainly along the lines for an increased endowment to the Thayer School, of some \$30,000.00.

As many are aware, a start has been made on this increased endowment, by a pledge of \$5,000.00 from Mr. J. P. Snow, T.S. 1875.

It is now up to the Alumni, and as many as they can interest, to raise the remaining \$25,000.00.

Those who are familiar with the annual statements that have been sent out for some years past, will readily perceive, that the income from an increase of \$30,000.00, will just about make up the annual deficit for the past several years.

The Society has had a fair growth during the past year, some sixteen new names being added to our numbers, of which thirteen came from the Class of 1913, every graduate joining the Society.

The necrology for 1913, together with the list of deceased members, will be found in the Annual, following the list of the members of the Thayer Society.

Two amendments to the Constitution of the Society were offered, and after considerable lively discussion, were strongly voted down. A general discussion then took place with reference to increasing the endowment of the Thayer School.

After a statement by the Secretary of what had been done, the matter was discussed by the President—Mr. Ferguson, Mr. J. P. Snow, Professor Sanborn, Professor Fletcher, Mr. J. J. Hopper, and others.

The matter was left to the Executive Committee to work out a plan.

Informal remarks were made by various speakers as follows:—Mr. Rudolph P. Miller, Superintendent of Buildings of the City of New York, the special guest of the evening, who gave his impressions of Dartmouth College, as a result of a critical examination of several colleges, with a view to choosing one for his son, who entered Dartmouth last September. Mr. Snow spoke on the need of a permanent fund to supplement the resources of the School, and of the interest of the Thayer Society in promoting the effort to secure it. Also, incidentally, on the success of an endeavor to get an addition to the annuity of a descendant of the late Gen. Thayer. Mr. G. L. Mann (T. S. C. E., 1898), formerly Assoc. Professor of Engineering, and lately Director General of Public Works, Santo Domingo, spoke on the relations of the Thayer School and Thayer Society to the engineering profession, and the obligations which result. Professor Fletcher gave a brief review of his forty-two years in Hanover and the development of the School in that time.

Adjournment was then made to the rooms of the Dartmouth Club, where the remainder of the evening was passed most agreeably in a continued social reunion. A vote of thanks was given to the Dartmouth Club for their hospitality.



## TREASURER'S REPORT FOR ANNUAL MEETING

FOR FISCAL YEAR ENDING JANUARY 20, 1914

## RECEIPTS

Cash balance, January 14, 1913 .....	\$ 50.40
Collections from new membership fees .....	20.00
Collections from annual dues .....	206.40
Collections from subscriptions and pledges .....	1,015.00
	<hr/>
Total .....	\$1,291.80

## DISBURSEMENTS

**General Expense:**

Printing, stationery, clerical work .....	\$41.12
Postage .....	17.73
Exchange on checks .....	1.70
	<hr/>
	\$ 60.55

**The Annual:**

Circulars, clerical work and postage .....	\$ 51.12
Printing and binding .....	290.50
	<hr/>
	341.62

**Thayer Fund:**

Appropriations for 1914 .....	\$850.00
Cash balance, January 20, 1914 .....	39.63
	<hr/>
	889.63

Total .....	\$1,291.80
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A. C. TOZZER, *Treasurer*F. H. MUNKELT, *Asst. Treas.*

Unaudited, January 20, 1914.

## LIST OF MEMBERS

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### CHARTER MEMBERS ARE INDICATED BY †

T. S. indicates Thayer School men; more complete information on preceding pages. C. S. D. indicates men of the Chandler Scientific School or Scientific Course of Dartmouth College. D. C. indicates Dartmouth College. N. H. C. indicates New Hampshire College A. and M. A.

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### HONORARY MEMBERS

Ernest F. Nichols, D.Sc.,  
Hanover, N. H.  
Henry L. Abbott, LL.D.,  
23 Berkeley St., Cambridge, Mass.  
Gustav J. Fieberger,  
U. S. Mil. Academy, West Point, N. Y.  
Prof. Robert Fletcher, Ph.D., Mil. Academy 1868,  
Hanover, N. H.  
William J. Tucker, D.D., LL.D., D. C. '61,  
Hanover, N. H.  
Prof. Chas. F. Emerson, D. C. '68,  
Hanover, N. H.  
Prof. Frank A. Sherman, C. S. D. '70,  
Hanover, N. H.

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Henry D. Abbott, T. S. '14,  
23 Berkeley St., Cambridge, Mass.  
Herman E. Abbott, T. S. '93,  
Passaic Water Co., Paterson, N. J.  
Arthur A. Adams, T. S. '95,  
78 Westminster St., Springfield, Mass.  
Frank E. Allard, M.D., C. S. D. '85,  
373 Commonwealth Ave., Boston, Mass.  
Henry W. Allen, C. S. D. '80,  
20 Market St., Manchester, N. H.  
D. H. Andrews, C. S. D. '69,  
47 Winter St., Boston, Mass.  
J. G. Andrews, T. S. '02,  
284 Franklin St., Newton, Mass.  
†John W. Ash, T. S. of '01.  
107 Chamberlin Ave., Chattanooga, Tenn.

- Prof. Frank E. Austin, B.S., C. S. D '95,  
Hanover, N. H.
- Henry H. Austin, C. S. D. '85,  
Wellesley College, Wellesley, Mass.
- †James L. Averill, T. S. '98,  
Hamilton & Chambers, 29 Broadway, New York City.
- Benjamin Ayer, T. S. '10,  
Monatiquot Rubber Works, So. Braintree, Mass.
- A. H. Ayers, T. S., '07,  
U. S. Reclamation Service, Fort Shane, Mont.
- G. F. Baine, T. S. '09,  
Ferro Carril Oeste de Buenos Aires, Oficina del Subterraneo,  
Calle B. Mitre, 2961, Buenos Aires, Argentina.
- Harold Tower Baker, T. S. '13,  
Great Northern Paper Co., Box 193, Millinocket, Me.
- Ralph Edmund Baker, T. S. '13,  
555 West Park St., Dorchester, Mass.
- William H. Balch, T. S. '98,  
46 Green St., Hudson, Mass.
- †George P. Bard, C. S. D. '89,  
Petroleum Iron Works Co., Sharon, Pa.
- Howard Arthur Barends, T. S. '14,  
405 Delaware Ave., Albany, N. Y.
- †Percy L. Barker, T. S. '94,  
Jersey Shore, Pa.
- Arthur B. Barnes, T. S. '09,  
Barnaby Mfg. Co., Fall River, Mass.
- Samuel C. Bartlett, T. S. '08,  
Hastings Pavement Co., 25 Broad St., New York; or Hanover.  
N. H.
- Sydney C. Beane, T. S. '12,  
175 North St., Weymouth, Mass.
- Fred S. Berry, C. S. D. '88,  
Factoryville, Pa.
- Charles L. Bourne, T. S. '07,  
121 Woodbine St., Auburndale, Mass.
- J. J. Boynton, T. S. '12,  
144 West 94th St., New York City.
- †Daniel E. Bradley, T. S. '85,  
1021 Asylum Ave., Hartford, Conn.
- Delmont R. Bradley, T. S. '10,  
With Geo. F. Hardy, 309 Broadway, New York City.
- John D. Brewster, T. S. '14,  
Windsor, Vt.
- George F. Brooks, C. S. D. '81,  
Missoula, Mont.
- John P. Brooks, C. S. D. '85,  
Clarkson College of Technology, Potsdam, N. Y.

- Harry M. Brown, T. S. '14,  
59 Marion St., Mt. Kisco, N. Y.
- Maurice F. Brown, T. S. '98,  
47 Winter St., Boston, Mass.
- Ralph H. Brown, T. S. '85,  
Eastern Bridge and Structural Co., Worcester, Mass.
- Arthur L. Buxton, T. S. '10,  
518 East Fourth St., Cincinnati, Ohio.
- Herbert H. Callman, D. C. '04,  
H. Howard & Co., 9 Mott Ave., Far Rockaway, N. Y.
- J. P. Canty, C. S. D. '90,  
B. & M. Ry., Fitchburg, Mass.
- C. L. Carpenter, T. S. '89,  
Andover, Mass., or Central Aguirre, Porto Rico.
- Wesley G. Carr, C. S. D. '84,  
P. O. Box 911, Pittsburg, Pa.
- John A. Cassidy, T. S. '11,  
242 East Third St., Brooklyn, N. Y.
- †Edgar R. Cate, T. S. '01,  
Union Bank Bldg., Pittsburg, Pa.
- †Charles F. Chase, D. C. '89,  
New Britain, Conn.
- Charles R. Chase, T. S. '02,  
5 Hopper St., Utica, N. Y.
- Edward S. Chase, D. C. '89,  
Penn. R. R., Pier K, Jersey City, N. J.
- Rush Chellis, D. C. '83,  
Claremont, N. H.
- †Amasa B. Clark, T. S. '90,  
225 Fifth Ave., New York City, and Stephen Girard Bldg.,  
Philadelphia.
- Charles W. Coffin, C. S. D. '64,  
173 Broadway, Bangor, Maine.
- George R. Colson, T. S. '06,  
North Billerica, Mass.
- Harold D. Comstock, T. S. '04,  
Mitchell, Neb.
- Walter A. Conley, T. S. '06,  
116 Essex Ave., Glen Ridge, N. J.
- Charles F. Conn, C. S. D. '87,  
604 Penna. Bldg., Philadelphia, Pa.
- Frank G. Cook, T. S. '10,  
N. P. R. R., Asst. Eng., Dakota Div., Jamestown, N. D.
- R. E. Cox, C. S. D. '92,  
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- †Frank E. Cudworth, T. S. '02,  
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City.
- J. T. Cunningham, C. S. D. '87,  
30 Church St., New York City.
- †Carroll W. Davis, T. S. '03,  
Civ. Eng., Corning, Tehama Co., California.
- †Edwin R. Davis, T. S. '96,  
Florida E. Coast Ry., Marathon, Fla.
- Fred R. Davis, T. S. '95,  
Goffstown, N. H.
- Addison L. Day, C. S. D. '70,  
Merchants Laclede Bldg., St. Louis, Mo.
- Royal B. Doane, T. S. '03,  
Maple Hill, New Britain, Conn.
- Luther Nelson Doe, T. S. '13,  
Turner Construction Co., 11 Broadway, New York City.
- John F. Doonan, T. S. '05,  
N. Y., N. H. & H. Ry., New Haven, Conn.; Greenville, N. H.
- P. S. Dow, T. S. '11,  
Instructor Dartmouth College; also Knoxville, Tenn.
- Joseph N. Drew, C. S. D. '82,  
134½ Bay Shore Boulevard, Tampa, Florida.
- Arthur W. Dudley, C. S. D. '67,  
936 Elm St., Manchester, N. H.
- Benjamin H. Dudley, T. S. '10,  
76 Park St., Malone, N. Y.
- J. H. Dunlap, T. S. '08,  
311 Brown St., Iowa City, Iowa.
- Frank H. Eastman, D. C. '06,  
50 Church St., New York City.
- Whitney H. Eastman, T. S. '11,  
387 Undercliff Ave., Edgewater, N. J.  
Midland Linseed Oil Products Co., Edgewater, N. J.
- Andrew W. Edson, D. C. '78,  
Park Ave. and 59th St., New York City.
- Willard W. Eggleston, C. S. D. '91,  
Dept. Agri., Bureau Plant Indians, Washington, D. C.
- Arthur J. Ela, T. S. '08,  
U. S. Lighthouse Service, Ketchikan, Alaska.
- C. E. Ellsworth, D. C. '07,  
Wentworth, N. H.
- H. L. English, T. S. '12,  
Lisbon, N. H.
- Shepley Wilson Evans,  
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- †Leslie B. Farr, T. S. '03,  
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- Harry W. Fitts, T. S. of '03,  
79 Pembroke St., Newton, Mass., or 110 State St., Boston.
- †William H. Ford, T. S. '95,  
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- Alvah T. Fowler, T. S. '01,  
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- †Arthur W. French, T. S. '92,  
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- Charles A. French, C. S. D. '93,  
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- John French, D. C. '86,  
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- Jos. B. Gerould, M.D., C. S. D. '78,  
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- Jasper M. Gibson, T. S. of '01,  
161 West 103d St.  
Boller, Hodge & Baird, 111 Broadway, New York City.
- Ray T. Gile, T. S. '79,  
61 Pleasant St., Littleton, N. H.
- C. M. Goddard, C. S. D. '77,  
141 Milk St., Boston, Mass.
- Charles F. Goodrich, T. S. '06,  
Am. Bridge Co., 30 Church St., New York.
- Robert R. Gould, T. S. '10,  
533 Tinton Ave., New York City.
- †Albert H. Greenwood, T. S. '00,  
847 Main St., Hartford, Conn.
- James W. Hale, C. S. D. '81,  
281 High St., Newburyport, Mass.
- Arthur W. Hardy, T. S. '89,  
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- Edward D. Hardy, T. S. '91,  
Filtration Plant, Washington, D. C.
- George F. Hardy, C. S. D. '88,  
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- Arthur W. Hare, T. S. of '03,  
Care Norcross Bros. Co., Worcester, Mass.
- Reuben Hayes, T. S. '08,  
Southern Ry., 1300 Pennsylvania Ave., Washington, D. C.
- Allen Hazen, N. H. C. '85,  
42nd. St. Bldg., New York City.

- †Prof. John V. Hazen, T. S. '76,  
Hanover, N. H.  
Ralph W. Hazen, D. C. '08,  
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William N. Hazen, T. S. '90,  
172 White St., Orange, N. J.  
Charles W. Healey, C. S. D. '81,  
Exeter, N. H.  
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New York City.  
Edward W. Higbee, T. S. '11,  
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David M. Hildreth, '87,  
131 12th St., N. E., Washington, D. C.  
Harry C. Hill, T. S. '03,  
Care Lane Construction Corporation, Meriden, Conn.  
George Hitchcock, T. S. '13,  
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William Hood, C. S. D. '67,  
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†John J. Hopper, T. S. '85,  
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Ewart G. Horne,  
P. O. Box 62, Fairville, N. B., Canada.  
C. K. Hosford, T. S. '03,  
North Thetford, Vt.  
†Otis E. Hovey, T. S. '89,  
Care Am. Bridge Co., 30 Church St., New York City.  
Fred J. Hutchinson, C. S. D. '78,  
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- John Y. Jewett, T. S. '95,  
408 Commonwealth Building, Denver, Colo.
- Edward J. Johnson, T. S. of '97,  
219 Lindelle Bldg., Spokane, Wash.
- J. Howard Johnston, C. S. D. '70,  
Care Morgan, Hargis & Cie, 31 Boulevard Haussmann, Paris,  
France. Died, May 10, 1913, at Lima, Peru.
- Sydney E. Junkins, D. C. '87,  
10 Bridge St., New York City.
- Walter Stewart Kelly, C. S. D. '82,  
4 Marion Terrace, Brookline, Mass.
- B. A. Kimball, D. C. '54,  
Concord, N. H.
- W. F. Kimball, T. S. '12,  
30 Lee St., Cambridge, Mass.
- W. R. Kimball, D. C. '07,  
454 No. Grove Ave., Oak Park, Ill.
- Harold D. King, T. S. '06,  
22 Meeting St., Charleston, S. C.
- Joseph R. Kinney, T. S. '11,  
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- N. Hobbs Knight, T. S. '08,  
North Berwick, Maine.
- R. G. Knight, T. S. '09,  
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- C. H. Larimer, C. S. D. '85,  
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- †Maurice J. Leahy, T. S. '03,  
Care of George F. Hardy, 309 Broadway, New York City.
- John H. Letteney, T. S. '96,  
101 Tremont St., Boston, Mass.
- E. A. Lincoln, T. S. '09,  
29 Bedford St., Fall River, Mass.
- A. L. Livermore, D. C. '88,  
30 Broad St., New York City.
- C. E. Locke, T. S. '12,  
Turner Construction Co., 312 Prudential Bldg., Buffalo, N. Y.
- Samuel J. Lord, T. S. '96,  
City Engineer's Office, Manchester, N. H.
- C. A. Luck, D. C. '08,  
840 Ohio Bldg., Toledo, Ohio.
- Charles R. Main, T. S. '08.  
(Representing Chas. T. Main, Engr., of Boston) Great Falls,  
Montana.



- John W. Mair, T. S. '04,  
P. O. Box 1351, Winnipeg, Manitoba, Canada.
- †John L. Mann, T. S. '98,  
51 Chambers St., New York City.
- †William F. Mann, C. S. D. '90,  
356 Columbus Ave., Boston, Mass.
- William H. G. Mann, C. S. D. '93,  
95 No. Main St., Penacook, N. H.
- Raymond R. Marsden, T. S. '09  
Care H. S. Ferguson, 200 Fifth Ave., New York City.
- Francis B. Marsh, T. S. '02,  
Board of Water Supply, 165 Broadway, New York City.
- John J. Marshall, T. S. '85,  
Basin, Wyo.
- Geo. I. McAllister, C. S. D. '77,  
325 The Kennard, Manchester, N. H.
- Charles F. McCarthy, C. S. D., '88,  
Naugatuck, Conn.
- J. H. McElroy, D. C. '03,  
555 Myrtle Ave., Albany, N. Y.
- Samuel A. McCoy, T. S. '97,  
1725 Eleventh Ave., Spokane, Wash.
- John S. McDonald, T. S. '14,  
33 Carruth St., Dorchester, Mass.
- †George J. McIndoe, T. S. '96,  
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- †John A. McNicol, T. S. '82,  
Care of Snare & Triest, Box 733, Havana, Cuba.
- George E. Melendy, C. S. D. '85,  
204 Center St., Orange N. J.
- Henry Melville, D. C. '79,  
45 Cedar St., New York City.
- Edmund Irving Mitchell, T. S. '13,  
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- Joseph F. Moore, D. C. '83,  
311 Nicolet Ave., Minneapolis, Minn.
- †Edwin J. Morrison, T. S. '93,  
Hastings Pavement Co., 25 Broad St., New York City.
- Harrie L. Muchemore, T. S. '06,  
%W. W. Anderson & Co., 117 Grant Ave., San Francisco, Cal.
- Frederick Herman Munkelt, T. S. '09,  
427 Bryson St., Youngstown, Ohio.
- Frank W. Newhall, T. S. '02,  
Republic, Fayette Co., Pa.
- †Charles H. Nichols, T. S. '88,  
45 East 42d St., New York City.

- George H. Nolan, T. S. '00,  
With Snare & Triest Co., Havana, Cuba, Box 733.
- Ralph W. Noyes, T. S. '11,  
With Stone & Webster Corporation, Boston, Mass.
- Whitefield, N. H., Care Dr. R. E. Wilder,
- Luther S. Oakes, T. S. '00,  
801 Globe Bldg., Minneapolis, Minn.
- Herbert C. Osborne, T. S. '14,  
Gurnsey Bldg., Keene, N. H.
- Robert E. Parker, T. S. '11,  
26 Pratt St., Reading, Mass.
- Frank N. Parsons, D. C. '74,  
Franklin, N. H.
- †Henry M. Paul, T. S. '75,  
The Ontario, No. 605, Washington, D. C.
- H. W. Pease, T. S. '12,  
297 Grove St., Fall River, Mass.
- John W. Pearson, C. S. D. '83,  
Room 467, South Station, Boston, Mass.
- R. H. Peck, T. S. '08,  
855 Riverside Drive, New York City.
- Geo. E. Pender, M.D., C. S. D. '93,  
83 Merrimac St., Portsmouth, N. H.
- Locke McL. Perkins, T. S. '03,  
2111 Washington Ave., Tacoma, Wash.
- Lew Knowlton Perley, T. S. '13,  
Laconia, N. H.
- Wesley W. Phelps, C. S. D. '81,  
343 So. Hill St., Los Angeles, Cal.
- †William C. Phelps, T. S. '95,  
Room 1026 A, Rapid Trans. Construc. Co., 165 Broadway,  
New York City.
- Marshall W. Picken, T. S. '15,  
547 West 141st St., New York City.
- Harold E. Plumer, T. S. '03,  
With Turner Construction Co., 312 Prudential Bldg., Buffalo,  
N. Y.
- Henry G. Porter, D. C. '06,  
87 Warburton Ave., Yonkers, N. Y., or  
Hazen & Whipple, 103 Park St., New York City.
- John E. Porter, T. S. '03,  
4 Ashburton Pl., Yonkers, N. Y.
- John F. Pratt, C. S. D. '71,  
U. S. C. and G. Survey, Washington, D. C.
- T. R. Remsen, T. S. of '03, .  
283 Jefferson Ave., Brooklyn, N. Y.  
With George F. Hardy, 309 Broadway, New York City.
- Frank J. Reynolds, C. S. D '89,  
Care Gen. Elec. Co., 30 Church St., New York City.

- Walter C. Rich, T. S. '09,  
Holly, N. Y.
- E. T. Richards, T. S. '09,  
22 Mason St., Pawtucket, R. I.
- C. P. Richardson, T. S. '09,  
6546 Stewart Ave., Chicago, Ill.
- Harold S. Richmond, T. S. '03,  
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- †Wilfred C. Risley, T. S. '01,  
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- Harrison G. Roby, T. S. '06,  
1027 Carpenter Ave., Iron Mountain, Mich.
- Fletcher Rogers, T. S. '11,  
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Res. Demarest, Bergen Co., N. J.
- H. L. Ropes, T. S. '04,  
154 Winslow St., Watertown, N. Y.
- †Warren F. Rugg, T. S. '02,  
767 Elm St., Peekskill, N. Y.
- Arthur V. Ruggles, D. C. '02,  
City Hall, Cleveland, Ohio; Filter Dept.
- Edward F. Ruggles, C. S. D. '94,  
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- Sydney Lee Ruggles, T. S. '09,  
Hanover, N. H.
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- Alva B. Rutherford, D. C. '08,  
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- Frank B. Sanborn, T. S. '89,  
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- †Hiram N. Savage, T. S. '90,  
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Care of Chief Engr., U. S. Recl. Service, Washington, D. C.
- Frederick E. Schilling, D. C. '08,  
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- Horace H. Sears, D. C. '00,  
City Engr., Redwood City, San Mateo Co., California.
- W. T. Shaw, T. S. '06,  
Middleboro, Mass., R. F. D. No. 1.
- F. E. Shedd, C. S. D. '80,  
60 Federal St., Boston, Mass.
- Ralph A. Sherwin, T. S., 1911,  
16 Summit St., Orange, Mass.
- William M. Silleck, D. C. '07,  
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- Albert Smith, T. S. '03,  
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- Arthur W. Smith, N. H. C. '95,  
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- Lyndon A. Smith, D. C. '80,  
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- L. B. Smith, T. S. '06,  
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- Samuel J. Smith, T. S. '01,  
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- Mark G. Snow, T. S. '13,  
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- William P. Snow, C. S. D. '81,  
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- Chas. R. Spalding, C. S. D. '88,  
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- George F. Sparhawk, T. S. '91,  
American Bridge Co., Ambridge, Penn.
- Frank F. Spencer, T. S. '14,  
P. O. Box 271, Hanover, N. H.
- Parker Spofford, C. S. D. '65,  
Bucksport, Me.
- John F. Springfield, T. S. '86,  
Rochester, N. H.
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- William E. Stanley, C. S. D. '91,  
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- Everett M. Stevens, T. S. '02,  
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- Samuel S. Stevens, T. S. '13,  
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- Edwin M. Stiles, T. S. '14,  
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- †George C. Stoddard, C. S. D. '81,  
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- Arthur W. Stone, T. S. '96,  
1718 14th St., Bedford, Ind., or  
Hartford, Vt.
- Edw. M. Stone, T. S. '94,  
49 Pearl St., Hartford, Conn.
- Ried Herrick Stone, T. S. '13,  
Santa Marta Ry., Santa Marta, Colombia.
- Jas. H. Stone, T. S. '09,  
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- Franklin H. Stowell, T. S. '05,  
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Chester A. Studwell, T. S. of '03,  
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Hugh B. Tabor, T. S. '97,  
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Arthur C. Tozzer, T. S. '03,  
Care Turner Const. Co., 11 Broadway, New York City.  
Frank H. Trow, T. S. '95,  
Chief Engr. Winston & Co., Ashokan Reservoir. Browns Sta-  
tion, N. Y.  
Albert L. True, T. S. '02,  
Lancaster, Mass. (Missing since March, 1906.)  
Lucius E. Varney, D. C. '99,  
149 Broadway, New York City.  
Geo. W. Wales, C. S. D. '86,  
Manchester, N. H.  
John Walker, T. S. '03,  
Care I. C. C., 731 Welis Fargo Bldg., San Francisco, Cal.  
Sidney G. Walker, T. S. '93,  
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H. A. Ward, T. S. '10,  
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Edward B. Wardle, T. S. '00,  
Engr. for George F. Hardy, 309 Broadway, New York City.  
Lewis C. Waterbury, T. S. '13,  
Oriskany, N. Y.  
†Herbert L. Watson, T. S. '00,  
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Leslie Wead, C. S. D. '72,  
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F. W. Welch, T. S. '08,  
Spirit Lake, Idaho.  
Harry A. Wells, T. S. '11,  
Hanover, N. H.  
†Benjamin F. Welton, T. S. of '95,  
Commissioner of Accounts, 51 Chambers St., New York City.  
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- Fred S. Weston, T. S. '09,  
Middleboro, Mass.
- F. L. Wheaton, T. S. '86,  
D. L. & W. Ry., Scranton, Pa., or  
85 So. Arlington Ave., E. Orange, N. J.
- Bertrand T. Wheeler, C. S. D. '84,  
Eng'r Maine Cent. Ry., Portland, Me.
- Earl F. Whitaker, T. S. of '02,  
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- F. S. Whitcomb, T. S. '12,  
1870 California St., N. W., Washington, D. C.
- Ralph E. Whitney, T. S. '13, .  
154 Washington St., Keene, N. H.
- Thomas T. Whittier, T. S. '00,  
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- Conrad C. Wilbur, T. S. '14,  
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- †Philip H. Winchester, T. S. '00,  
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- W. C. Winkley, T. S. '09,  
7 W. Concord St., Dover, N. H.
- Morton O. Withey, T. S. '05,  
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- George P. Wood, T. S. '90,  
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- Carl B. Worthen, T. S. '04,  
Box 290, Los Angeles, Cal.
- R. T. Young, T. S. '12,  
Littleton, N. H.

#### DECEASED MEMBERS

- Mart A. Beal, C. S. D., 1880. Died March 12, 1910.
- Charles H. Treat, C. S. D., 1865. Died May 31, 1910.
- Ralph S. Soper, T. S., 1904. Died June 16, 1910.
- Richard Hazen, T. S., 1909. Died August 13, 1911.
- Robert H. Pearson, T. S., of 1908. Died January 4, 1912.
- William H. Puffer, T. S., 1892. Died March 17, 1912.
- Schiller Hosford, D. C., 1886. Died April 5, 1912.
- George I. Leland, C. S. D., 1884. Died May 16, 1912.
- Robert L. Read, C. S. D., 1864. Died June 29, 1912.
- Eliphalet B. Gage, C. S. D., 1858. Died March, 1913.
- J. Howard Johnston, M. S., C. S. D. '70. Died May 10, 1913, at  
Lima, Peru.
- Frederic Danforth, C. S. D., 1870. Died June 6, 1913.
- John R. Eastman, Ph. D., C. S. D., 1862. Died Sept. 26, 1913.
- William H. Pratt, C. S. D., 1874. Died September 5, 1914.

## ORGANIZATION

The Thayer Society of Engineers of Dartmouth College, was instituted at a meeting held in New York City, Dec., 1903, the outcome of several informal assemblies of former students of the THAYER SCHOOL OF CIVIL ENGINEERING and the Chandler School of Science and Arts of Dartmouth College, whose collegiate, social, and professional interests are closely interwoven, and who were concerned for the welfare and needs of the Engineering Department of the College.

The support of the Executive Committee co-operating with the Board of Overseers of the School, in urging the needs of the THAYER SCHOOL upon the attention of the Trustees of the College, resulted in securing the present habitat adequate for many coming years, and on a site worthy of the history and accomplishment of the Institution.

The annual meetings, held on the evening preceding the annual meeting of the Am. Soc. of Civil Engineers (and thus convenient for such as are members of both Societies) have always proved to be pleasant reunions of old friends and classmates, and opportunities for the younger men to meet older members and extend their range of acquaintance.

The annual dues are merely nominal, so as not to be burdensome; and the fact that the Thayer Society has undertaken to meet the cost of publication of THE ANNUAL, which is sent to all Thayer School men, should induce all to participate in this, at least to the extent of holding membership in the Society.

## CONSTITUTION

### 1. NAME AND PURPOSE

1. The name of this voluntary association shall be Thayer Society of Engineers, of Dartmouth College.

2. Its object is to further the interests of the Thayer School of Civil Engineering; to promote social intercourse among its members, and to keep them informed as concerns the work and needs of said school.

### II. MEMBERSHIP

1. There shall be eligible for membership in this Society, (a) former students in the Thayer School of Civil Engineering, (b) graduates of the Chandler Scientific Department of Dartmouth College, who graduated prior to the year 1894, and (c) officers of, or former students in any or all departments of Dartmouth College, not described in (a) or (b), whose eligibility shall have been certified by an affirmative vote of the Executive Committee taken previous to any action on the part of that Committee, under Section 4 of Article II of this Constitution, and affecting the person whose eligibility it is sought to determine under this clause (c).

2. A person may become an honorary member of the Society by a unanimous vote of the Advisory Board and Executive Committee. For the purposes of such a vote, said bodies may act separately or as a unit. Letter ballots may be sent to the Secretary.

3. Members and Honorary Members shall be eligible for election to the Advisory Board. Members only shall be eligible for election to the Executive Committee.

4. The Executive Committee shall vote on the admission of such persons as shall have been proposed by a member or members of the Society. The name of the person proposed, together with that of his proposer, shall be entered in a book kept for that purpose, before the Executive Committee proceeds to vote on the admission of that person.



5. Notice of election may be given either to the person elected or to his proposer. If the payment of the membership fee is not made within three months of the date of notice of election, the election shall be void.

6. The membership fee shall be one dollar.

7. Annual dues shall be one dollar, payable in advance.

8. Honorary members shall have all the rights and privileges of members which are not inconsistent with Article II of this Constitution.

### III. EXECUTIVE COMMITTEE

1. The conduct of the Society's affairs shall be confided to a committee of five of its members, to be known as the Executive Committee.

2. The Executive Committee shall have power to fill any vacancy in their number until the next Annual Meeting of the Society.

3. The Executive Committee shall have the power to elect, annually, from their number a President, a Secretary, and a Treasurer, of the Society; they shall also have the power to remove and replace the same. Members of the Executive Committee shall hold office until their successors are elected.

4. The Executive Committee shall have power to make rules for their own government. An affirmative vote of a majority of all the members of the Executive Committee shall be necessary to amend the rules made by that committee.

5. The Executive Committee shall have power to admit members by ballot, one adverse ballot excluding. The vote upon the admission of a proposed member may be reconsidered and a second ballot taken at the same meeting at which such vote was taken, upon motion of any member of the committee. If such a vote is to be reconsidered at a later meeting, ten days' notice must be given to each member of the committee.

6. The Executive Committee shall have power to call special meetings of the Society.

### IV. OFFICERS

1. The President shall preside at all meetings of the Society and of the Executive Committee. In his absence, a presiding officer may be elected.

2. The Treasurer shall keep the Society's accounts, receive and disburse moneys, and make a report, annually, to the Society.

3. The Secretary shall keep a record of the meetings of the Society and of the Executive Committee; also a record of the names and addresses of members.

4. The officers shall have such other powers and duties as may be prescribed by the Constitution or by the Executive Committee.

#### V. ADVISORY BOARD

1. An Advisory Board of seven members, three of whom shall be elected at each annual meeting, after the first election (at which six shall be elected in classes of three), shall have the power to indicate lines of work or investigation to the Executive Committee, which shall adopt and pursue any definite policy set forth in a written statement signed by not less than five members of the Advisory Board. The Director of the Thayer School of Civil Engineering shall be a member, *ex-officio*, of the Advisory Board.

2. No person shall be at one time a member of the Advisory Board and of the Executive Committee.

3. No member residing in the City of New York or within fifty miles of the same shall be eligible for membership in the Advisory Board.

4. The organization of the Advisory Board shall be wholly within the power of that Board.

#### VI. ANNUAL MEETING

1. The Annual Meeting of the Society shall be held in the month of January in the City of New York; the first Annual Meeting shall be held in the month of January, 1905.

2. There shall be mailed to each member, at least ten days before the Annual Meeting, a notice of the meeting, together with copies of all lists of nominations received by the Executive Committee prior to the fifteenth day of December.

3. Any member residing at a distance of more than fifty miles from the City of New York may vote by letter ballot.

4. As soon as the Annual Meeting is organized, the presiding officer shall appoint three Tellers to receive and canvass the vote.

5. The Secretary shall turn over to the Tellers all letter ballots received.

6. A voter of a letter ballot, if present at the Annual Meeting, may withdraw his ballot at any time previous to the commencement of voting, on the part of such members as are present; he may then vote with the members present.

7. The vote for members of the Advisory Board and of the Executive Committee shall be by ballot. On the ballots the names of those persons voted for to become members of the Advisory Board shall be separated from the names of those voted for to become members of the Executive Committee. A ballot may contain names not included in any list of nominations. All names voted by a member shall be on one ballot. A ballot containing names in excess of the number of members to be elected shall be rejected by the Tellers.

8. As soon as the canvass is completed, the Tellers shall report the result of the balloting to the presiding officer, who, thereupon, shall declare the vote.

9. Those persons receiving the five highest number of votes cast for members of the Executive Committee shall be declared elected to membership in that Committee. Membership in the Advisory Board shall be determined and declared in a similar manner.

10. In case of a tie vote, the members present, by a majority vote shall choose one of the candidates, who by reason of the tie vote failed of election on the first ballot.

11. No voting by proxy shall be permitted.

12. Twenty members shall constitute a quorum at any meeting of the Society. If no quorum be present, the presiding officer shall adjourn the meeting to some other day.

## VII. AMENDMENTS

The Constitution of this Society may be amended at any Annual Meeting or at any Special Meeting called for that purpose, by a two-thirds vote in the affirmative, a quorum being present and voting.

## NAMES AND ADDRESSES OF ALUMNI

MEN OF DARTMOUTH IN PURSUITS MORE OR LESS RELATED TO ENGINEERING,—MANUFACTURE, ADMINISTRATION, RAILROADS, ETC.

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### ARRANGED IN CHRONOLOGICAL ORDER

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CHANDLER SCIENTIFIC DEPARTMENT OF DARTMOUTH COLLEGE. Unless otherwise indicated, all alumni up to and including the year 1870 are graduates of the Chandler Scientific School, as it was then known. After 1870 such graduates are indicated by C. S. D., up to 1894.

C. S., indicates Chandler Scientific Course of the College after 1894.

D. C., Dartmouth College, Academic Course.

N. H. C. New Hampshire College of Agriculture and Mechanic Arts.

N. U., Norwich University.

M. C., Middlebury College.

†Indicates Member of the Thayer Society of Engineers of Dartmouth College.

\*Indicates that reply was made to the circular or the card sent out by the Secretary of the Thayer Society.

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\*†Benjamin A. Kimball '54, B.S., A.M. Manufacturer and Engineer Railroad Manager. Pres. C. & M. R.R. Pres. Mechanics Nat. Bank and other corporations. Memb. Amer. Social Science Assoc. Active member New Hampshire Historical Society. Trustee Dartmouth College. Concord, N. H. Class Secretary and Treasurer.

Orrin F. Brooks '55, B.S. Teacher (retired). 200 Belmont St., Brockton, Mass.

Joseph S. Howe '55. Civil Engineer. Member both branches of Massachusetts Legislature. Town Clerk, Treas., and Collector since 1877. Methuen, Mass.

Simon R. Marston '55. Civil Engineer (retired). 1st Lieutenant 10th N. H. Vols. Maj. and Addl. Paymr. U. S. A. Brev. Lieut. Col. U. S. Vols. 168 State St., Portsmouth, N. H.

- Albert Wood '56, B.S., M.D. Physician. Surgeon U. S. A., '62-'65. Pres. Worc. City Hosp. V. Pres. Memorial Hospital. Director and Med. Director State Mutual Life Assur. Co. Memb. National, State, and Dist. Med. Socs. Treas. Worc. Insane Hos. and Worc. Insant Asylum. Director Worc. Gas Light Co. 71 Pleasant St., Worcester, Mass.
- Frank John Smith '57. Druggist and Bookseller. Ypsilanti, Mich.
- \*Cyrus S. Wright '57, B.S. President of the firm of N. Gray & Co., Inc., Funeral Directors. 2198 Geary St., San Francisco, Cal.
- Harvey J. Chamberlin, C.S.D. '58, B.S., LL.B. Missionary, Lawyer, Merchant, Banker. 500 W. Concho Ave., San Angelo, Texas.
- William Martin Chase, C.S.D. '58, B.S., M.A., LL.D. (1898). Lawyer, Justice of Supreme Court of New Hampshire. 93 School St., Concord, N. H.
- Charles W. Hayes '58, B.S. Farmer. Engineer. 61 Belknap St., Dover, N. H.
- Joseph E. Marsh '58, B.S. Real Estate—Robert Marsh & Co., Res. 1201 3d Ave., Los Angeles, Cal.
- John E. Sinclair '58, B.S., A.M., Ph.D. Professor Emeritus Worcester Polytechnic Inst. Retired in 1908 after 39 years' service at the Polytech. Inst., and 50 years of continuous teaching. 4 North Ave., Worcester, Mass.
- John M. Bancroft, C.S.D. '59, B.S., Manufacturer (retired). Served three years in 4th Mich. Infantry, Sergt. and 1st Lieut.; 1884-1911. Secretary and Treasurer, Hammond Typewriter Co., 40 Beach St., Bloomfield, N. J.
- Lord J. Butler '59, B.S. Planter. Civil Engineer. Port Gibson, Miss.
- Samuel K. Hamilton, C. S. D. '59, B.S., M.S. Lawyer. Pres. Middlesex Bar Assoc. Memb. Bar Assoc., City of Boston and vicinity, Mass. State Bar Assoc. U. S. Bar Assoc. 31 Milk St., Boston, Mass.
- \*George H. Strong '59, B.S. Patent Attorney. 911 Crocker Bldg., San Francisco, Cal. Home, 271 Lee St., Oakland.
- Albert S. Bickmore, D.C. '60, A.B., B.Sc., A.M., Ph.D., LL.D. American Museum of Natural History, New York City, Professor Emeritus, Dept. of Public Instruction. Deceased.
- Lycortas B. Hall '61, B.S., M.S., M.D. Physician. Specialist in Diseases of the Eye. Membr. Northern Med. Soc., also County and State Med. Socs. 139 N. 15th St., Philadelphia, Pa.
- \*Edward D. Redington, D.C. '61, A.B., A.M. Major U. S. Volunteers. Trustee Dart. Coll two terms. Jury Commissioner of Cook Co., Ill., '97 to '07. Life Ins., 1905-1908. Harris Trust Bldg., Chicago. Permanent address: 512 Lake St., Evanston, Illinois.

- †William J. Tucker, D. C. '61, A.B., A.M., D.D., LL.D. Congregational Minister. Pastor Franklin St. Ch., Manchester, N. H. Madison Square Church, New York. Prof. Andover Theological Sem. Founder Andover House (social settlement), Boston. Editor Andover Rev. Author: *From Liberty to Unity*, 1892; *The Making and Unmaking of the Preacher*, 1899. Pres. Dart. College, 1893-1909. Hanover, N. H.
- William H. Baldwin '62, C. S. D., B.S., M.S. Civil Engineer. Captain New York Vol. Engr. Deputy City Engr., Yonkers, N. Y. Engr. Yonkers Water Works. Memb. Amer. Soc. C. E. Yonkers, N. Y.
- Stephen Rand, D. C. '63, A.B. Asst. Engr. U. S. N., Asst. Pay Master, Past Asst. Pay Master, Pay Master, Pay Inspector (retired) with rank of Read Admiral, 1906. Address: Navy Department, Washington, D. C.
- Charles W. Spalding, C.S.D. '63, B.S., A.M. Pres. Spalding Land Co. Sec. Land Dept., C. B. & Q. Ry. Manager of an Investment Co. Wholesale coal dealer and banker, Chicago. Board of Trustees, Dartmouth College (1892-1896). 1851 Byron St., Chicago, Ill.
- \*†Charles W. Coffin '64, B.S. Merchant, also director or President of several Mfg., Mining, and Lumbering Corporations. V. Pres. Bangor Board of Trade. 173 Broadway, Bangor, Me.
- James W. Perkins '64, B.S. Teacher. Served in 7th Rhode Island Cavalry, 60th Mass. Vols. and 17th N. H. Vols. Real Estate. Memb. Kansas City Humane Soc., Congl. Union, Associated Charities, Civic League, and the G. A. R. Sec. and Treas. Children's Home Soc. of Kan. City Dist. 1108 Forest Ave., Kansas City, Mo
- Elliot Whipple D.C. '64, A.B., A.M. Professor of Civics and Economics, Wheaton, Ill.
- Charles C. Arms, D. C. '65, A.B., A.M., M.D. U. S. Volunteers. Professor of Anatomy Univ. of Wooster, Cleveland, O.
- John E. Johnson, C. S. D. '65, B.S., D. C. '66, A.B. 1st Lieut. Co. K., N. H. H. A., in Civil War. Captain and A. Q. M. U. S. Vols. Clergyman. Supt. Social Service Soc. 1223 S. 58th St., Philadelphia, Pa.
- Arthur C. Morse '65, B.S. Engineer. 86 Summer St., Malden, Mass.
- Charles H. Sargent, C. S. D. '65, B.S. Served in 8th Massachusetts Volunteers 1864. Extensive railroad location and construction in the western and southern states. Drainage and irrigation work. Has been disabled from active work for several years. 3222 U. St., Lincoln, Neb.
- \*†Parker Spofford '65, B.S. Civil Engineer. Engaged in railroad engineering in Iowa and Missouri '65 to '72. Since then engaged at intervals upon different railroads in Maine as Engr. Memb. of Board of Railroad Commissioners for 9 years. 1900-1909. Bucksport, Me.

- Henry C. Ide, D. C. '66, A.B., A.M., LL.D. Lawyer. U. S. Commissioner to Samoa. Chief Justice of Samoa. Memb. Philippine Commission, Secretary of Finance and Justice for Philippine Islands, Vice Gov. and Gov. Gen. for the same. St. Johnsbury, Vt. Now Envoy Extraordinary and Minister Plenipotentiary, Madrid, Spain. Memb. Vt. Bar Assoc. and Philippine Bar Assoc.
- \*†Thomas P. Kinsley '66, B.S., M. A. S. C. E. Civil Engr. and Contractor. 7519 Linwood Ave., Cleveland, Ohio.
- \*Horace E. Marion '66, B.S., M.D. Memb. E. W. Kinsley Post 113, Dept. Mass., G. A. R. Maj. and Brigade Surgeon (Lieut. Col.), 1st Brigade M. V. M. 1882, Berlin and Vienna '78 and '79. Memb. Am. Med. Asso. and Mass. Med. Soc. Ex-Pres. Middlesex Co. Dist. Med. Soc. Med. Inspector of Schools. 6 Sparhawk St., Boston, Mass. Sons Am. Rev. Perm. Memb. Grand Lodge Mass. A. F. & A. M.
- \*Doan B. Colcord '67, B.S., M.D. Phys. and Surg. Bellevue Hosp. Med. Coll., 1875. Consulting Engr. in charge of constructing Mount Hood Railroad. Asst. Engr. O. S. L. R. R. (1905-1908). Consulting Engr. Colorado Fuel Co. Lunts, Oregon. Perm. address: 60th Ave. and 82d St., Portland, Ore. Portland State Med. Soc., Leane Co., Ore., Med. Soc. Author of "Colcord Genealogy," 1908.
- Arthur W. Dudley '67, B.S. Engineer. Many years engaged in Railroad Engineering, C. B. & Q. R. R.; N. Y., N. H. & H. R. R., formerly Engr. J. T. & Key West R. R. General practice, with Hydraulics as a specialty. 936 Elm St., Manchester, N. H.
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- William A. Ketcham, D. C. '67, A.B., LL.D. Lawyer. Capt. 13th Ind. Vols. Atty Gen. state of Ind. Dept. Commander, G. A. R., Dept. of Ind. Memb. Indianapolis Lit. Club. Pres. Ind. Bar Assoc. 1007-8 Odd Fellows Bldg., Indianapolis, Ind. Home address: 4242 N. Illinois St.
- George B. Lane '67, B.S. Served in 11th and 15th New Hampshire Infantry. Teacher. Supt. Pub. Instruction, Nebraska. Mayor Olympia, Wash. Retired. 812 Queen Anne Ave., Seattle, Wash.
- John J. McDavitt, D. C. '67, A.B. Lawyer. Pompton Lakes, N. J.
- Sidney L. Rice, C.S.D. '67, B.S. Publisher. Served in Civil War. 133 E. 3d St., Cincinnati, O.
- Charles H. Chandler, D. C. '68, A.B., A.M. Professor Mathematics and Physics. Professor emeritus since 1906. City Engr., Ripon, Wis. Memb. numerous scientific societies. Lately of Ripon College, Ripon, Wis. Now, New Ipswich, N. H.; working on town history.

- \*†Charles F. Emerson, D. C. '68, A.B., A.M. Professor Natural Philosophy and Dean of Dart. College (retired). Life Memb. of A. A. A. S. Hanover, N. H.
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- James B. Brooks, D. C. '69, A.B., A.M., LL.B., D.C.L. Lawyer. Captain 4th Vermont Vols. Dean Coll. of Law, Syracuse Univ. Memb. N. Y. State Bar Asso., Amer. Bar Asso. 1013 East Adams St., Syracuse, N. Y.
- Charles E. Merrill '69, B.S. President Charles E. Merrill Co., publishers educational text books. 44 E. 23d St., New York City.
- Lucius G. Shepard '69, B.S. Contracting Engineer. 712 Garfield Ave., Kansas City, Mo.
- Dwinel F. Thompson '69, B.S. Professor Rensselaer Polytechnic Institute, 79 Fifth St., Troy, N. Y.
- Daniel T. Wheaton, D. C. '69, A. B. Assistant Engineer on Great Northern and C. M. & St. Paul Rys. Civil Engr. and County Surveyor. Morris, Minn.
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- \*E. Perley Hemenway '70, B.S. Mechanical Engineer. Expert work, developing inventions, etc. Past Pres. of Bay State Engr. Soc., Secy. and Mgr. of the Gosselin Co. Past Pres. Interstate Engr. Assoc. 40 Kilby St., Boston, Mass.
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- Ethelbert Talbot, D. C. '70, A.B., A.M., LL.D., D.D., S.T.D. Bishop Wyoming and Idaho, '87-'98. Bishop of Bethlehem. Trustee Lehigh Univ. Author of book entitled: "My People of the Plains." Address: Bishop's House, So. Bethlehem, Pa.
- \*†Shepley W. Evans, C. S. D. '71, B.S., LL.B. Civil Engineer on Parks, Railroads, etc., '71-'78. Asst. U. S. Engr. River and Harbor work, '78-'79. Engr., Purchasing Agt., and Paymaster for Contractors, '79-'85. Memb. Engrs. Club of Phil. Organizer and Memb. of firm, Sparks and Evans, Contractors, Res. 805 Abbott Bldg., Race St., Philadelphia.
- \*†John F. Pratt, C. S. D. '71, B.S. Asst. U. S. Coast & Geodetic Survey since '71. Memb. Wash. Acad. of Science and Amer. Assoc. for Advancement of Science. International Geographic Congress and International (Permanent) Navigation Congress. Permanent address: U. S. Coast and Geod. Survey, Washington, D. C. Present address: U. S. Coast and Geodetic Survey, Seattle, Washington. Inspection duty, Ore., Wash., and Alaska.
- Warren Upham, D. C. '71, A.B., A.M., D.Sc. Assistant in railroad and water works surveys, Concord, N. H., '72-'74. Asst. on geological surveys of N. H., Minn., and the U. S., '74-'95. Author of many papers on glacial geology and history. Memb. Am. Assoc. for Advancement of Science, the Geological Soc. of America, the Boston Society of Natural History, the Minnesota Academy of Sciences, the Minnesota Historical Society, the American Historical Association, and the Victoria Inst. of London. Sec. and Librarian of the Minn. Historical Soc. since '95. St. Paul, Minn.
- Frank Woodbridge, C. S. D. '71, B.S. Formerly Chief Engineer, C. S. & C. R. R. Present time Contractor and Civil Engr. Union Trust Bldg., Indianapolis, Ind.
- \*Frank H. Chamberlain, C. S. D. '72, B.S. Freight Traffic Manager and Paymaster of Apsley Rubber Co. Hudson, Mass.
- Asa M. French, D. C. '72, A.B. Engineer. Corpus Christi, Texas.
- Albert E. Frost, D. C. '72, A.B., A.M., Sc.D. Asst. Alleghany Observatory, Prof. of Physics, Central High School, Pittsburgh, Pa. Prof. Physics, Western Univ. of Pa., Register and Treas. College and Eng. Schools. Professor of Math., Univ. of Pittsburgh; Register of Univ. at date; Acting Dean, College and

School of Engineering, 1908-1910. Treas. Engrs. Soc. W. Pa. Past Pres. Academy of Sciences and Arts, Pittsburg, Pa. 4527 Winthrop St., Pittsburg, Pa.

\*Robert G. Pike, C. S. D. '72, B.S., A.M. Lawyer. From 1896 to 1901, Associate Justice Supreme Court of New Hampshire. Since 1901, Associate Justice Superior Court, New Hampshire. Visitor Chandler Foundation. Trustee Berwick Acad., Berwick, Me., and Strafford Savings Bank, Dover, N. H. Address: Dover, N. H.

Charles H. Sawyer, D. C. '72, A.B. Engineer. 2005 4th Ave., Kearney, Neb.

\*†Leslie C. Wead, C. S. D. '72, B.S., LL.B. Lawyer and Real Estate Trustee. 35 Congress St., Boston Mass. Memb. Am. Bar Ass'n, Boston Bar Ass'n.

Thomas W. D. Worthen, D. C. '72, A.B., A.M. Memb. of Public Service Comm. of New Hampshire. Professor Emeritus, Mathematics, Dart. Coll. Memb. Phi Beta Kappa Soc., Amer. Math. Soc., the Assoc. of Math. Teachers in N. E. Director Dart. Summer School, 1900-1911; Memb. of Legislature, 1905. Justice of the Police Court 1891-1911.

Alfred W. Emery, C. S. D. '73, B.S. Secretary and Treasurer Evansville Cotton Mfg. Co., 310 Washington Ave., Evansville, Ind.

George P. Heilman, C. S. D. '73, B.S. Manufacturer. Permanent address: 1100 Upper 2nd St., Evansville, Ind. Mining Sec. and Treas. of the Exchequer Gold Mining Co., Hahn's Peak Dist., Col.

Edwin H. Ketcham, C.S.D. '73, B.S., M.S. Architectural Engr. (retired). 2934 Talbot Ave., Indianapolis, Ind.

Herbert G. King, C.S.D. '73, B.S. Architect. Engineering Dept. Solvay Process Co. 27 Berhl Block, Detroit, Mich.

Olney W. Phelps, C. S. D. '73, B.S., M.D. Physician. Memb. Massachusetts State Med. Soc., and Bookfield Med. Club, Warren, Mass.

George J. Carr, C. S. D. '74, B.S. Lawyer. 149 Broadway, New York City. Res. 125 Upper Mountain Ave., Montclair, N. J.

Tillotson W. Gilson, C. S. D. '74, B.S. Business. Memb. of the firm of Ginn & Co., Publishers, 29 Beacon St., Boston, Mass. Home Address: 20 Everett Ave., Winchester, Mass.

Charles O. Huntress, C. S. D. '74, B.S. Chief Clerk of Eng. Dept. of the Northwestern Tel. Ex. Co. Formerly Prin. of several schools in Minn. and Asst. City Engr., Minneapolis. 1705 Clinton Ave., Minneapolis, Minn.

Roger S. Johnson, C. S. D. '74, B.S. Manager Mensha Wooden Ware Co. Memb. Wis. Legislature '95. Ladysmith, Wis.

\*Elgin A. Jones C. S. D. '74, B.S. Civil Engr., Real Estate. Keene, N. H.

- Louis C. Merrill, C. S. D. '74, B. S. Sec. Concord Mutual Fire Ins. Co., and Gen. Ins. Agts., Eastman & Merrill.- 82 North Main St., Concord, N. H.
- Frank N. Parsons, D. C. '74, A.B., LL.D. Chief Justice Supreme Court New Hampshire. Franklin, N. H.
- †William H. Pratt, C. S. D. '74, B.S. Gen. Supt. North Works, Ill. Steel Co. Chicago, Ill. Deceased, September, 1914.
- Charles M. Cone, C. S. D. '75, B.S. Treasurer Hartford Woolen Co., Hartford, Vt.
- Frederick H. Crafts, D. C. '75, A.B., A.M. Engineer, also Business; has served on several of the principal railroads of this country, as Engr., in charge of a great variety of work, from location to maintenance of way also as Engr. in charge of canal work and good roads for New York State, and on waterways, and ship canal for the United States. 97 Glendale Park, Rochester, N.Y.
- Charles A. Prouty, D. C. '75, A. B. Lawyer. Memb. Interstate Commerce Comm., Newport, Vt. Governor of Vermont.
- Charles A. Rich, C. S. D. '75, B.S. Architect for all new buildings of Dartmouth College, also for buildings for other colleges, and in New York City. Memb. several architectural and art societies. 320 Fifth Ave., New York City.
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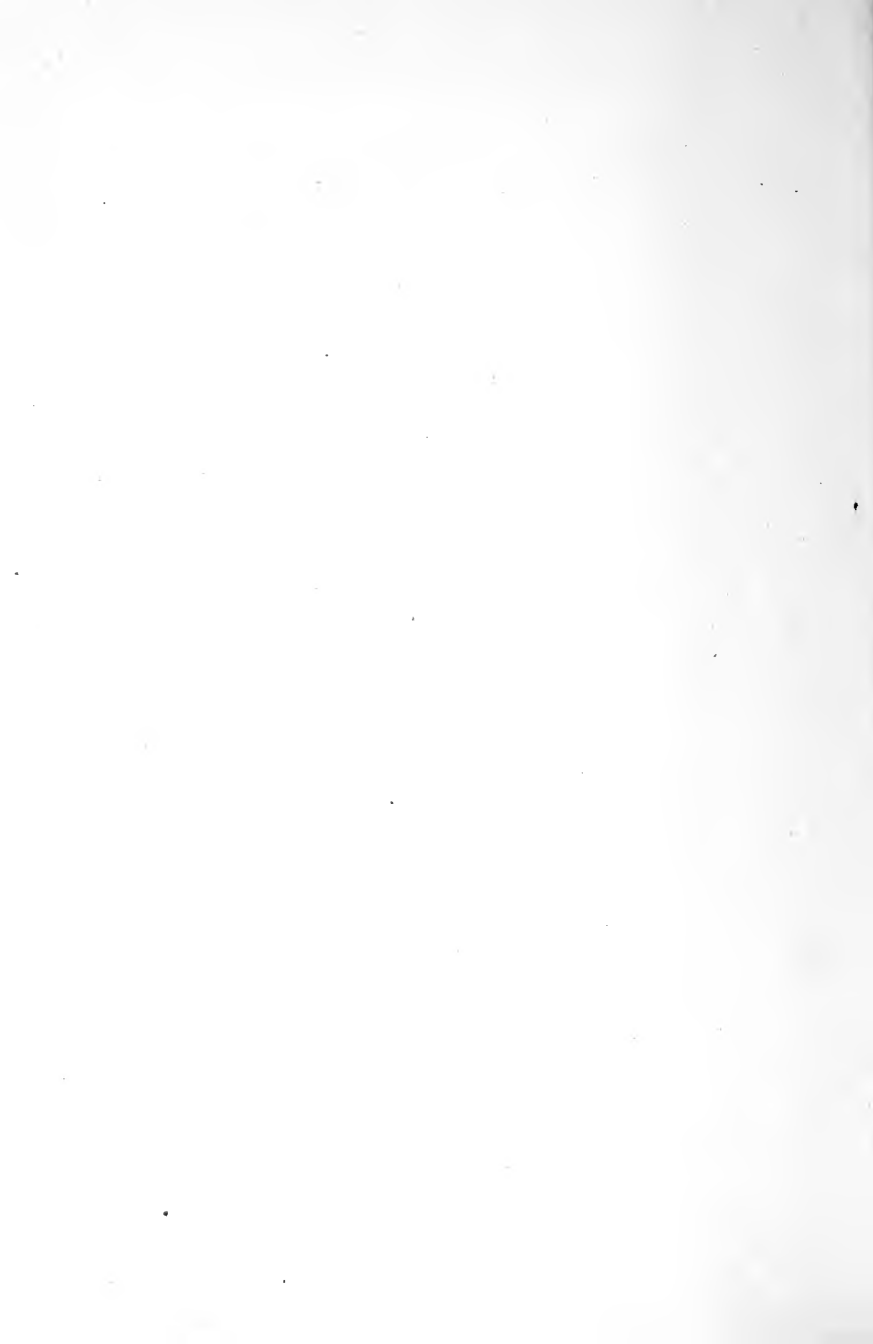
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